GEMINI™ SELECT
38APS025-050,38APD025-100 Air-Cooled Condensing Units with PURON® Refrigerant (R-410A) 50/60 Hz

Installation Instructions

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SAFETY CONSIDERATIONS

Installing, starting up, and servicing this equipment can be hazardous due to system pressures, electrical components, and equipment location (roofs, elevated structures, etc.).

Only trained, qualified installers and service mechanics should install, start up, and service this equipment.

Untrained personnel can perform basic maintenance functions, such as cleaning coils. All other operations should be performed by trained service personnel.

When working on the equipment, observe precautions in the literature, and on tags, stickers, and labels attached to the equipment and any other safety precautions that may apply.

- Follow all safety codes.
- Wear safety glasses and work gloves.
- Use care in handling, rigging, and setting bulky equipment.

⚠ WARNING

Open all remote disconnects before servicing this equipment. Failure to do so could result in personal injury from electric shock.

⚠ CAUTION

Puron refrigerant (R-410A) systems operate at higher pressures than standard R-22 systems. Do not use R-22 service equipment or components on Puron refrigerant equipment. If service equipment is not rated for Puron refrigerant, equipment damage or personal injury may result.

INSTALLATION

Step 1 — Inspect Shipment — Inspect unit for damage upon arrival. If damage is found, immediately file a claim with the shipping company. Verify proper unit delivery by checking unit nameplate data and the model number nomenclature shown in Fig. 1. See Tables 1-4 for unit physical data.

Step 2 — Rig and Place Unit — All units are designed for overhead rigging, and it is *important that this method be used.* Lifting holes are provided in the frame base rails. It is recommended to use shackles in the lifting holes (see rigging label on the unit and Table 5, and Fig. 2 and 3 for rigging weights and center of gravity). All panels must be in place when rigging.

IMPORTANT: To maintain unit stability while lifting, use 4 cables, chains or straps of equal length. Attach one end of each cable to shackle attachment point and the other end of each cable to the overhead rigging point.

Use spreader bars or frame to keep the cables, chains, and straps clear of the unit sides. Leave standard coil protection packaging in place during rigging to provide protection to coils. Remove and discard all coil protection after rigging cables are detached.

⚠ CAUTION

All panels must be in place when rigging. Failure to comply could result in equipment damage.

⚠ CAUTION

For unit sizes 025 to 060 when handling with a forklift, handle only through fork pocket holes. Failure to follow this caution could result in equipment damage or personal injury.

⚠ CAUTION

For unit sizes 070 to 100, do not forklift the unit unless unit is attached to a skid designed for forklifting. Failure to follow this caution could result in equipment damage or personal injury.

DOMESTIC UNITS — Standard 38AP unit packaging consists of coil protection only. *Skids are not provided.* If overhead rigging is not available at the jobsite, place the unit on a skid or pad before dragging or rolling. When rolling, use a minimum of 3 rollers. When dragging, pull the pad or skid. *Do not apply force to the unit*. When in final position, raise from above to lift unit off the pad or skid.

EXPORT UNITS — All export units are mounted on skids with vertical coil protection. Leave the unit on the skid until it is in final position. *While on the skid, the unit can be rolled or skidded. Apply force to the skid, not to the unit.* Use a minimum of 3 rollers when rolling. When in final position, raise from above to remove the skid.

PLACING UNITS — When considering location of the unit, be sure to consult National Electrical Code (NEC, U.S.A.) and local code requirements. Allow sufficient space for airflow, wiring, piping, and service. The placement area must be level and strong enough to support the operating weight of the unit. (See Table 5.) When unit is in proper location, use of mounting holes in base rails is recommended for securing unit to supporting structure. For mounting unit on vibration isolators, 4 x 24 in. perimeter support ASTM “C” channels between unit and the isolators are recommended with a minimum of 4 channels per unit. Fasteners for mounting unit are field supplied. See Fig. 4.

Refer to Fig. 5-8 for airflow clearances. Recommended minimum clearances are 6 ft (1829 mm) for unrestricted airflow and service on sides of unit, 4 ft (1219 mm) on ends, and unrestricted clear air space above the unit. Provide ample space to connect liquid and suction lines to indoor unit. For multiple units, allow 10 ft (3048 mm) separation between airflow surfaces. If walls surround the unit, wall height should not exceed the top of the unit fan discharge. Installation in a pit is not recommended.

IMPORTANT: Be sure to mount unit level to ensure proper oil return to compressors.

Refer to Fig. 9 for outdoor fan and compressor layout.

Refer to Fig. 10 and 11 for unit piping installation. See Table 6 for refrigerant specialties part numbers.

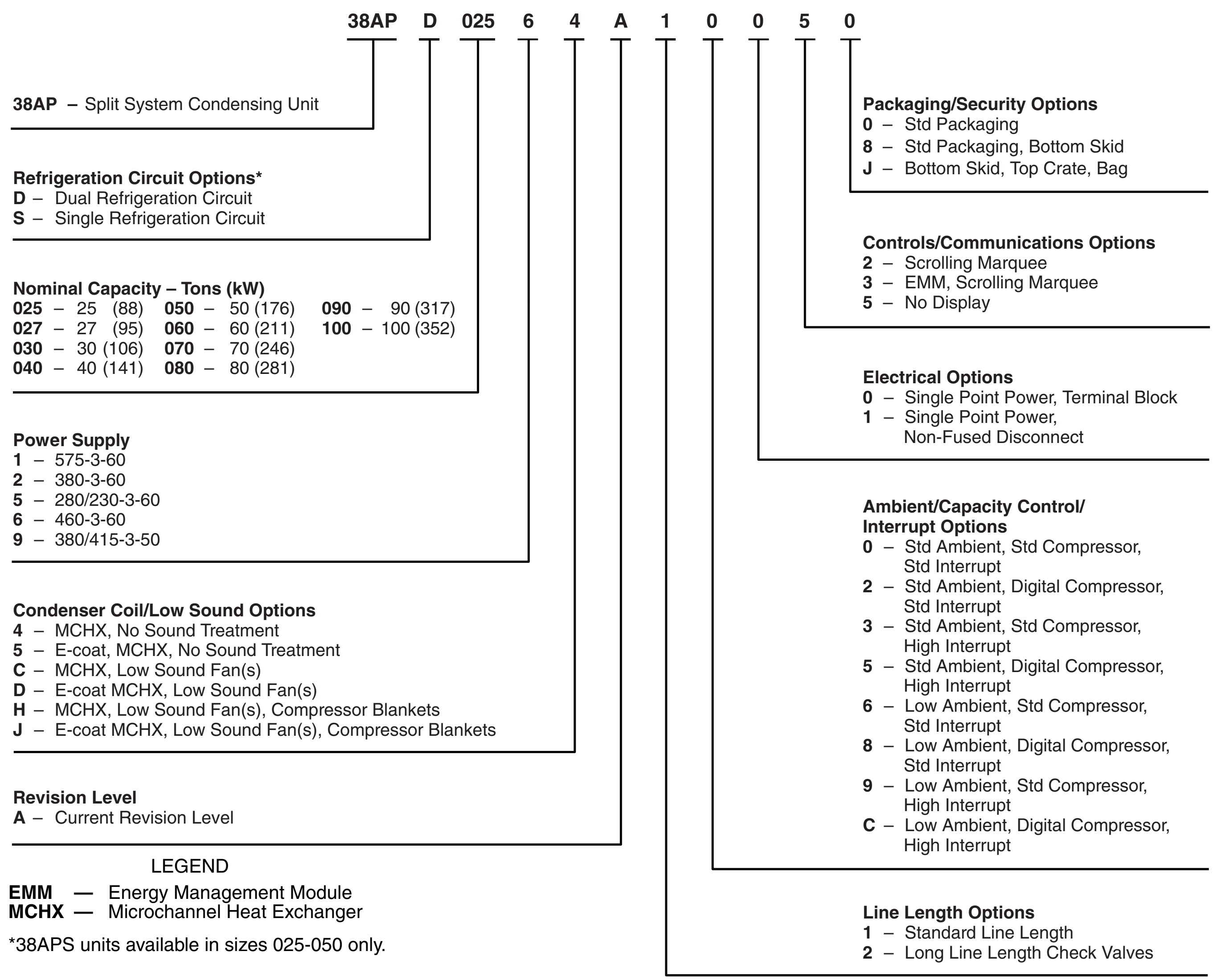


Fig. 1 — Model Number Nomenclature

Table 1 — 38AP025-050 Unit Physical Data — English

38AP UNIT SIZE	025		027		030		040		050	
NOMINAL CAPACITY, 50/60Hz (tons)	21/25		23/27		25/30		33/40		42/50	
CIRCUIT	Dual	Single	Dual	Single	Dual	Single	Dual	Single	Dual	Single
OPERATING WEIGHTS (lb)										
Standard	1095	1077	1258	1240	1264	1246	2094	1968	2120	1977
With Low Sound Option	1131	1113	1294	1276	1300	1282	2148	2022	2174	2031
APPROXIMATE REFRIGERANT CHARGE, TYPICAL (lb)*	28	24	30	26	30	26	52	40	52	40
NITROGEN SHIPPING CHARGE	15 psig									
COMPRESSOR hp (Qty) (CKT A/CKT B)	11 (2)	11 (2)	13 (2)	13 (2)	15 (2)	15 (2)	10 (2)/ 8.5 (2)	13 (3)	11 (2)/ 13 (2)	15 (3)
CAPACITY STEPS										
Standard	2	2	2	2	2	2	4	3	4	3
Digital Option	22	22	22	22	22	22	44	33	44	33
CRANKCASE HEATER (W) (each compressor)	90									
CONDENSER FANS										
Standard	Propeller Type - Direct Drive									
Quantity	2	2	2	2	2	2	3	3	3	3
RPM	1140 (60 Hz), 950 (50 Hz)									
Diameter (in.)	30									
Total Watts (60 Hz)	3300	3300	3300	3300	3300	3300	4200	4200	4200	4200
Total Watts (50 Hz)	2750	2750	2750	2750	2750	2750	3500	3500	3500	3500
Low Noise	Shrouded Axial Fan - Direct Drive									
Quantity	2	2	2	2	2	2	3	3	3	3
RPM	850 (60 Hz), 700 (50 Hz)									
Diameter (in.)	30									
Total Watts (60 Hz)	2750	2750	2750	2750	2750	2750	3500	3500	3500	3500
Total Watts (50 Hz)	2300	2300	2300	2300	2300	2300	2900	2900	2900	2900
CONDENSER COIL	MCHX Type									
No. Coils per Circuit	1						1			
sq ft	27.1	27.1	33.9	33.9	33.9	33.9	67.8	67.8	67.8	67.8
TEMPERATURE RELIEF	Fusible Plug on Liquid Lines of Each Circuit - 210 F									
CONNECTIONS (in.) ODF (CKT A/CKT B)										
Suction Line	$1\frac{3}{8}$ / $1\frac{3}{8}$	$1\frac{5}{8}$	$1\frac{3}{8}$ / $1\frac{3}{8}$	$1\frac{5}{8}$	$1\frac{3}{8}$ / $1\frac{3}{8}$	$1\frac{5}{8}$	$1\frac{5}{8}$ / $1\frac{5}{8}$	$2\frac{1}{8}$	$1\frac{5}{8}$ / $1\frac{5}{8}$	$2\frac{1}{8}$
Liquid Line	$\frac{5}{8}$ / $\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$ / $\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$ / $\frac{5}{8}$	$\frac{7}{8}$	$\frac{5}{8}$ / $\frac{5}{8}$	$\frac{7}{8}$	$\frac{5}{8}$ / $\frac{5}{8}$	$\frac{7}{8}$
MAXIMUM HEIGHT FOR 3° F SUBCOOLING (ft)†	75	75	75	75	75	75	75	75	75	75
CAPACITY PER CIRCUIT (%) (CKT A/CKT B)	50/50	100	50/50	100	50/50	100	54/46	100	48/52	100
MINIMUM UNIT CAPACITY (%)	50	50	50	50	50	50	23	33	23	33

LEGEND

MCHX — Microchannel Heat Exchanger
ODF — Outside Diameter, Female

*Typical operating charge with 25 ft of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.

†Maximum vertical separation between evaporator coil and condensing unit if condensing unit is below the evaporator.

Table 2 — 38AP060-100 Unit Physical Data — English

38AP UNIT SIZE	060	070	080	090	100
NOMINAL CAPACITY, 50/60Hz (tons)	50/60	58/70	67/80	75/90	83/100
CIRCUIT	Dual	Dual	Dual	Dual	Dual
OPERATING WEIGHTS (lb)					
Standard	2227	2450	2610	2835	2844
With Low Sound Option	2299	2522	2700	2943	2952
APPROXIMATE REFRIGERANT CHARGE, TYPICAL (lb)*	60	70	78	96	100
NITROGEN SHIPPING CHARGE	15 psig				
COMPRESSOR hp (Qty) (CKT A/CKT B)	13 (2)/15 (2)	15 (2)/11 (3)	15 (2)/15 (3)	13 (3)/15 (3)	15 (3)/15 (3)
CAPACITY STEPS					
Standard	4	5	5	6	6
Digital Option	44	55	55	66	66
CRANKCASE HEATER (W) (each compressor)	90				
CONDENSER FANS					
Standard	Propeller Type - Direct Drive				
Quantity	4	4	5	6	6
RPM	1140 (60 Hz), 950 (50 Hz)				
Diameter (in.)	30				
Total Watts (60 Hz)	6200	6000	7500	9000	9000
Total Watts (50 Hz)	5150	5000	6250	7500	7500
Low Noise	Shrouded Axial Fan - Direct Drive				
Quantity	4	4	5	6	6
RPM	850 (60 Hz), 700 (50 Hz)				
Diameter (in.)	30				
Total Watts (60 Hz)	5200	5000	6250	7500	7500
Total Watts (50 Hz)	4300	4150	5200	6250	6250
CONDENSER COIL	MCHX Type				
No. Coils per Circuit	1	2	2 to 3	3	3
sq ft	67.8	99.6	124.5	149.4	149.4
TEMPERATURE RELIEF	Fusible Plug on Liquid Lines of Each Circuit - 210 F				
CONNECTIONS (in.) ODF (CKT A/CKT B)					
Suction Line	1 5/8 / 1 5/8	1 5/8 / 2 1/8	1 5/8 / 2 1/8	2 1/8 / 2 1/8	2 1/8 / 2 5/8
Liquid Line	5/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8
MAXIMUM HEIGHT FOR 3° F SUBCOOLING (ft)†	75	75	75	75	75
CAPACITY PER CIRCUIT (%) (CKT A/CKT B)	46/54	47/53	40/60	46/54	50/50
MINIMUM UNIT CAPACITY (%)	23	24	20	15	17

LEGEND

MCHX — Microchannel Heat Exchanger
ODF — Outside Diameter, Female

*Typical operating charge with 25 ft of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.
†Maximum vertical separation between evaporator coil and condensing unit if condensing unit is below the evaporator.

Table 3 — 38AP025-050 Unit Physical Data — SI

38AP UNIT SIZES	025		027		030		040		050	
NOMINAL CAPACITY 50/60 Hz (kW)	74/88		81/95		88/106		116/141		148/176	
CIRCUIT	Dual	Single	Dual	Single	Dual	Single	Dual	Single	Dual	Single
OPERATING WEIGHTS (kg)										
Standard	497	489	571	562	573	565	950	893	961	897
With Low Sound Option	513	505	587	579	590	582	974	917	986	921
APPROXIMATE REFRIGERANT CHARGE, TYPICAL (kg)*	12.7	10.9	13.6	11.8	13.6	11.8	23.6	18.1	23.6	18.1
NITROGEN SHIPPING CHARGE	1.03 bar									
COMPRESSOR kW (Qty) (CKT A/CKT B)	8.2 (2)	8.2 (2)	9.7 (2)	9.7 (2)	11.2 (2)	11.2 (2)	7.5 (2)/ 6.3 (2)	9.7 (3)	8.2 (2)/ 9.7 (2)	11.2 (3)
CAPACITY STEPS										
Standard	2	2	2	2	2	2	4	3	4	3
Digital Option	22	22	22	22	22	22	44	33	44	33
CRANKCASE HEATER (W) (each compressor)	90									
CONDENSER FANS										
Standard	Propeller Type - Direct Drive									
Quantity	2	2	2	2	2	2	3	3	3	3
r/s	19 (60 Hz), 16 (50 Hz)									
Diameter (mm)	762									
Total Watts (60 Hz)	3300	3300	3300	3300	3300	3300	4200	4200	4200	4200
Total Watts (50 Hz)	2750	2750	2750	2750	2750	2750	3500	3500	3500	3500
Low Noise	Shrouded Axial Fan - Direct Drive									
Quantity	2	2	2	2	2	2	3	3	3	3
r/s	14 (60 Hz), 12 (50 Hz)									
Diameter (mm)	762									
Total Watts (60 Hz)	2750	2750	2750	2750	2750	2750	3500	3500	3500	3500
Total Watts (50 Hz)	2300	2300	2300	2300	2300	2300	2900	2900	2900	2900
CONDENSER COIL	MCHX Type									
No. Coils per Circuit	1						1			
sq m	2.5	2.5	3.2	3.2	3.2	3.2	6.3	6.3	6.3	6.3
TEMPERATURE RELIEF	Fusible Plug on Liquid Lines of Each Circuit - 99 C									
CONNECTIONS (in.) ODF (CKT A/CKT B)										
Suction Line	$1^{3}/_{8}$ / $1^{3}/_{8}$	$1^{5}/_{8}$	$1^{3}/_{8}$ / $1^{3}/_{8}$	$1^{5}/_{8}$	$1^{3}/_{8}$ / $1^{3}/_{8}$	$1^{5}/_{8}$	$1^{5}/_{8}$ / $1^{5}/_{8}$	$2^{1}/_{8}$	$1^{5}/_{8}$ / $1^{5}/_{8}$	$2^{1}/_{8}$
Liquid Line	$^{5}/_{8}$ / $^{5}/_{8}$	$^{5}/_{8}$	$^{5}/_{8}$ / $^{5}/_{8}$	$^{5}/_{8}$	$^{5}/_{8}$ / $^{5}/_{8}$	$^{7}/_{8}$	$^{5}/_{8}$ / $^{5}/_{8}$	$^{7}/_{8}$	$^{5}/_{8}$ / $^{5}/_{8}$	$^{7}/_{8}$
MAXIMUM HEIGHT FOR 1.7° C SUBCOOLING (m)†	23	23	23	23	23	23	23	23	23	23
CAPACITY PER CIRCUIT (%) (CKT A/CKT B)	50/50	100	50/50	100	50/50	100	54/46	100	48/52	100
MINIMUM UNIT CAPACITY (%)	50	50	50	50	50	50	23	33	23	33

LEGEND

MCHX — Microchannel Heat Exchanger
ODF — Outside Diameter, Female

*Typical operating charge with 7.62 m of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.
†Maximum vertical separation between evaporator coil and condensing unit if condensing unit is below the evaporator.

Table 4 — 38AP060-100 Unit Physical Data — SI

38AP UNIT SIZES	060	070	080	090	100
NOMINAL CAPACITY 50/60 Hz (kW)	176/211	204/246	236/281	264/317	292/352
CIRCUIT	Dual	Dual	Dual	Dual	Dual
OPERATING WEIGHTS (kg)					
Standard	1010	1111	1184	1286	1290
With Low Sound Option	1043	1144	1225	1335	1339
APPROXIMATE REFRIGERANT CHARGE, TYPICAL (kg)*	27.2	31.8	35.4	43.5	45.4
NITROGEN SHIPPING CHARGE	1.03 bar				
COMPRESSOR kW (Qty) (CKT A/CKT B)	9.7 (2)/11.2 (2)	11.2 (2)/8.2 (3)	11.2 (2)/11.2 (3)	9.7 (3)/11.2 (3)	11.2 (3)/11.2 (3)
CAPACITY STEPS					
Standard	4	5	5	6	6
Digital Option	44	55	55	66	66
CRANKCASE HEATER (W) (each compressor)	90				
CONDENSER FANS					
Standard	Propeller Type - Direct Drive				
Quantity	4	4	5	6	6
r/s	19 (60 Hz), 16 (50 Hz)				
Diameter (mm)	762				
Total Watts (60 Hz)	6200	6000	7500	9000	9000
Total Watts (50 Hz)	5150	5000	6250	7500	7500
Low Noise	Shrouded Axial Fan - Direct Drive				
Quantity	4	4	5	6	6
r/s	14 (60 Hz), 12 (50 Hz)				
Diameter (mm)	762				
Total Watts (60 Hz)	5200	5000	6250	7500	7500
Total Watts (50 Hz)	4300	4150	5200	6250	6250
CONDENSER COIL	MCHX Type				
No. Coils per Circuit	1	2	2 - 3	3 - 3	3 - 3
sq m	6.3	9.3	11.6	13.9	13.9
TEMPERATURE RELIEF	Fusible Plug on Liquid Lines of Each Circuit - 99 C				
CONNECTIONS (in.) ODF (CKT A/CKT B)					
Suction Line	1 5/8 / 1 5/8	1 5/8 / 2 1/8	1 5/8 / 2 1/8	2 1/8 / 2 1/8	2 1/8 / 2 5/8
Liquid Line	5/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8
MAXIMUM HEIGHT FOR 1.7° C SUBCOOLING (m)†	23	23	23	23	23
CAPACITY PER CIRCUIT (%) (CKT A/CKT B)	46/54	47/53	40/60	46/54	50/50
MINIMUM UNIT CAPACITY (%)	23	24	20	15	17

LEGEND

MCHX — Microchannel Heat Exchanger
ODF — Outside Diameter, Female

*Typical operating charge with 7.62 m of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.
†Maximum vertical separation between evaporator coil and condensing unit if condensing unit is below the evaporator.

Table 5 — Operational Corner Weights with Refrigerant Charge (Approximate)

38APS Unit (lb)

38APS UNIT SIZE	TOTAL WEIGHT	OPERATIONAL CORNER WEIGHT			
		A	B	C	D
025	1089	356	253	200	281
027	1255	396	291	240	327
030	1261	399	293	241	328
040	1998	619	616	380	382
050	2007	623	620	381	383

38APS Unit (kg)

38APS UNIT SIZE	TOTAL WEIGHT	OPERATIONAL CORNER WEIGHT			
		A	B	C	D
025	494	161	115	91	127
027	569	180	132	109	148
030	572	181	133	109	149
040	906	281	280	173	173
050	910	282	281	173	174

38APD Unit (lb)

38APD UNIT SIZE	TOTAL WEIGHT	OPERATIONAL CORNER WEIGHT			
		A	B	C	D
025	1107	360	258	204	285
027	1273	401	296	245	331
030	1279	404	297	245	333
040	2124	672	671	390	390
050	2150	683	684	392	391
060	2257	706	705	422	423
070	2494	723	620	532	620
080	2665	791	679	552	643
090	2901	759	750	692	700
100	2910	759	750	696	705

38APD Unit (kg)

38APD UNIT SIZE	TOTAL WEIGHT	OPERATIONAL CORNER WEIGHT			
		A	B	C	D
025	502	163	117	93	129
027	577	182	134	111	150
030	580	183	135	111	151
040	963	305	305	177	177
050	975	310	310	178	178
060	1024	320	320	192	192
070	1131	328	281	241	281
080	1209	359	308	250	292
090	1316	344	340	314	318
100	1320	344	340	316	320

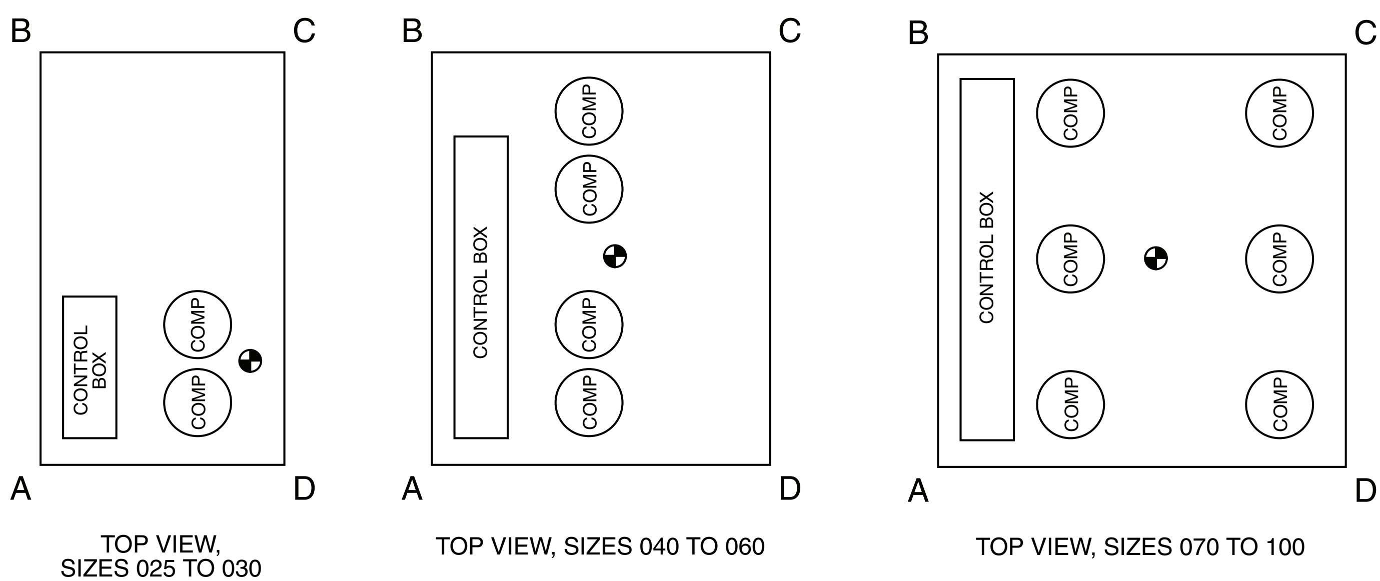
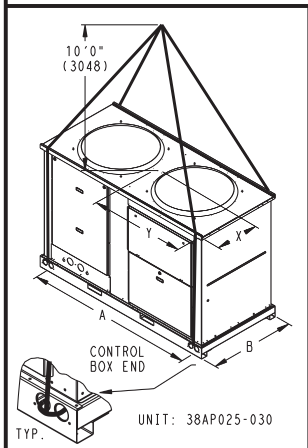


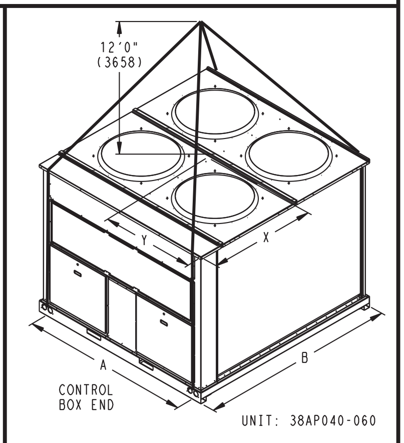
Fig. 2 — Corner Weights

CAUTION - NOTICE TO RIGGERS:

ALL PANELS MUST BE IN PLACE WHEN RIGGING. FORK ONLY THROUGH BASE RAIL FORK OPENINGS.

NOTES:
1. RIG WITH FOUR CABLES USING A MINIMUM 20 FT.(6094mm) LENGTH FOR 025-030 SIZES AND 24 FT.(7315mm) LENGTH FOR 040-060 SIZES.
2. CENTRAL LIFTING POINT MUST BE A MINIMUM OF 10 FT.(3048mm) FOR 025-030 SIZES AND 12 FT.(3658mm) FOR 040-060 SIZES ABOVE THE TOP OF THE UNIT.
3. LIFTING HOLES PROVIDED ARE 2.25 IN.(57.2mm) DIAMETER.
4. CHECK BILL OF LADING FOR SHIPPING WEIGHT OF UNIT.





MODEL NUMBER	MAX. SHIP WT. W/O PACKAGING		MAX. SHIP WT. W/PACKAGING		LIFTING HOLES				CENTER OF GRAVITY			
					A		B		X		Y	
	LBS	KGS	LBS	KGS	IN	MM	IN	MM	IN	MM	IN	MM
38APS025	1113	505	1163	528	79.39	2017	40.25	1022	17.78	452	36.87	937
38APD025	1131	513	1181	536	79.39	2017	40.25	1022	17.82	453	36.99	940
38APS027	1276	579	1326	601	79.39	2017	40.25	1022	18.21	463	37.60	955
38APD027	1294	587	1344	610	79.39	2017	40.25	1022	18.23	463	37.69	957
38APS030	1282	582	1332	604	79.39	2017	40.25	1022	18.18	462	37.52	953
38APD030	1300	590	1350	612	79.39	2017	40.25	1022	18.20	462	37.61	955
38APS040	2022	917	2097	951	79.39	2017	92.12	2340	35.00	889	44.00	1118
38APD040	2148	974	2223	1008	79.39	2017	92.12	2340	33.66	855	44.06	1119
38APS050	2031	921	2106	955	79.39	2017	92.12	2340	34.90	886	44.00	1118
38APD050	2174	986	2249	1020	79.39	2017	92.12	2340	33.39	848	44.12	1121
38APD060	2299	1043	2374	1077	79.39	2017	92.12	2340	34.35	873	44.06	1119

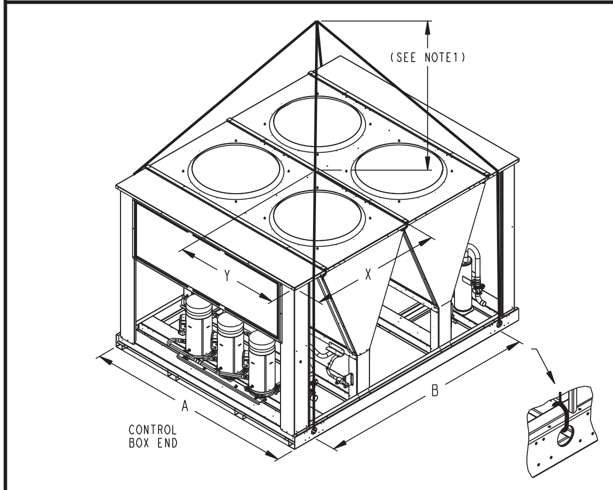
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SIZES 025 TO 060

CAUTION - NOTICE TO RIGGERS:

ALL PANELS MUST BE IN PLACE WHEN RIGGING. DO NOT FORK THIS UNIT WITHOUT SKID.

NOTES:
1. RIG WITH FOUR CABLES USING A MINIMUM 20 FT.(6094mm) LENGTH FOR 060,070 SIZES AND 24 FT.(7315mm) LENGTH FOR 080-100 SIZES.
2. CENTRAL LIFTING POINT MUST BE A MINIMUM OF 10 FT.(3048mm) FOR 060,070 SIZES AND 12 FT.(3658mm) FOR 080-100 SIZES ABOVE THE TOP OF THE UNIT.
3. LIFTING HOLES PROVIDED ARE 2.50 IN.(63.5mm) DIAMETER.
4. CHECK BILL OF LADING FOR SHIPPING WEIGHT OF UNIT.

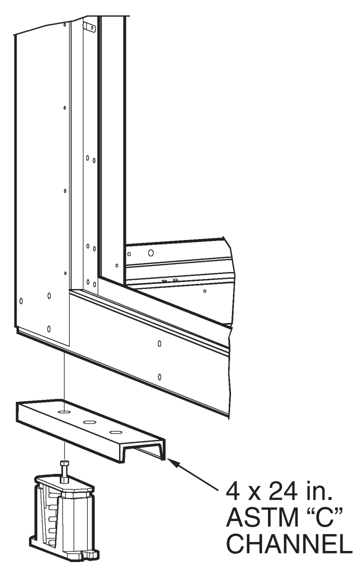


MODEL NUMBER	MAX. SHIP WT.W/O PACKAGING		MAX. SHIP WT. WITH PACKAGING		LIFTING HOLES				CENTER OF GRAVITY			
					A		B		X		Y	
	LBS	KGS	LBS	KGS	IN	MM	IN	MM	IN	MM	IN	MM
38APD070	2522	1144	2622	1189	88.00	2235	91.37	2321	50.92	1293	40.60	1031
38APD080	2700	1225	2830	1284	88.00	2235	131.62	3343	67.57	1716	40.15	1020
38APD090	2943	1335	3073	1394	88.00	2235	131.62	3343	72.40	1839	43.25	1099
38APD100	2952	1339	3082	1398	88.00	2235	131.62	3343	72.61	1844	43.25	1099

38AP501543

SIZES 070 TO 100

Fig. 3 — Rigging Labels

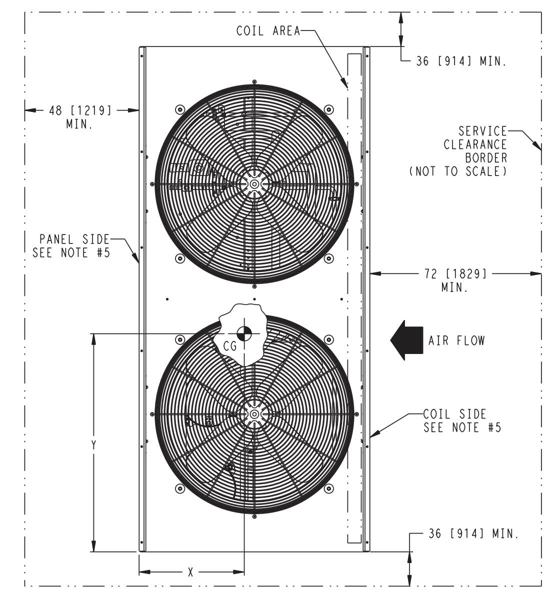


LEGEND
ASTM — American Society for Testing and Materials

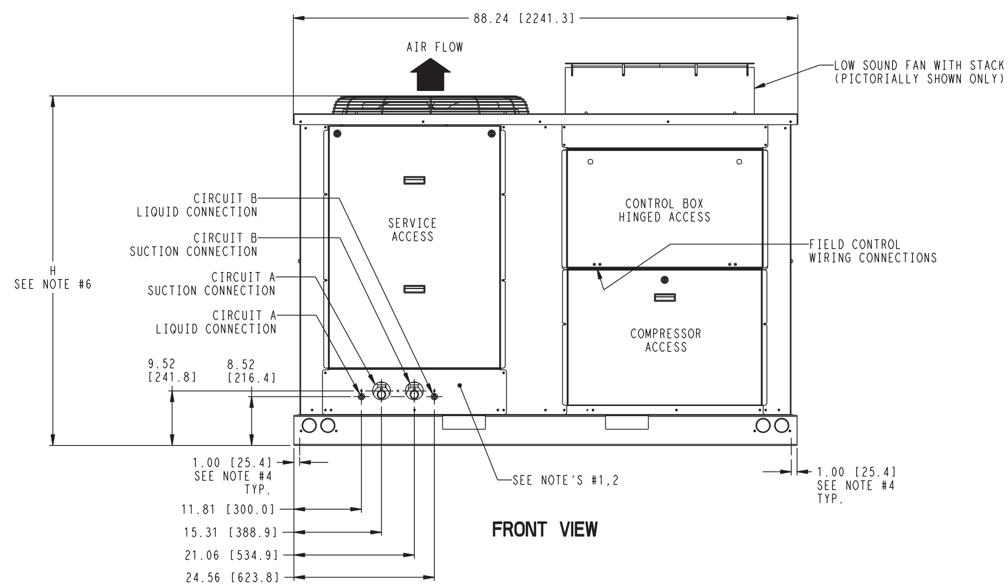
Fig. 4 — Perimeter Support Channel

UNIT		STANDARD WEIGHT, lb (kg)	CENTER OF GRAVITY, in. (mm)		HEIGHT, in. (mm)	POWER ENTRY, in. (mm)	SERVICE VALVE CONNECTIONS, in. (mm)	
			X	Y	H	P	Suction	Liquid
Standard	38APS025	1077 (489)	17.8 (452)	36.9 (937)	61.0 (1549)	24.9 (632)	$1^5/_8$ (41)	$^5/_8$ (16)
	38APD025	1095 (497)	17.8 (452)	37.0 (940)			$1^3/_8$ (35)	$^5/_8$ (16)
	38APS027	1240 (563)	18.2 (462)	37.6 (955)	73.1 (1857)	36.9 (937)	$1^5/_8$ (41)	$^5/_8$ (16)
	38APD027	1258 (571)	18.2 (462)	37.6 (955)			$1^3/_8$ (35)	$^5/_8$ (16)
	38APS030	1246 (565)	18.2 (462)	37.5 (953)			$1^5/_8$ (41)	$^7/_8$ (22)
	38APD030	1264 (573)	18.2 (462)	37.6 (955)			$1^3/_8$ (35)	$^5/_8$ (16)
Low Sound	38APS025	1113 (505)	17.8 (452)	36.9 (937)	66.5 (1689)	24.9 (632)	$1^5/_8$ (41)	$^5/_8$ (16)
	38APD025	1131 (513)	17.8 (452)	37.0 (940)			$1^3/_8$ (35)	$^5/_8$ (16)
	38APS027	1276 (579)	18.2 (462)	37.6 (955)	78.6 (1996)	36.9 (937)	$1^5/_8$ (41)	$^5/_8$ (16)
	38APD027	1294 (587)	18.2 (462)	37.6 (955)			$1^3/_8$ (35)	$^5/_8$ (16)
	38APS030	1282 (582)	18.2 (462)	37.5 (953)			$1^5/_8$ (41)	$^7/_8$ (22)
	38APD030	1300 (590)	18.2 (462)	37.6 (955)			$1^3/_8$ (35)	$^5/_8$ (16)

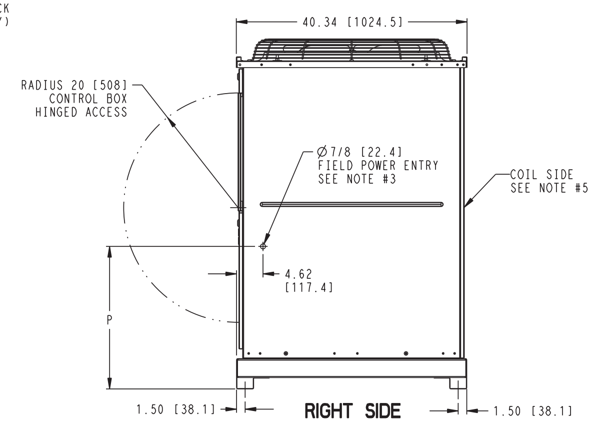
NOTES:
1. Be sure to use a wet rag to remove all valve cores before brazing field piping.
2. Do not cap or otherwise obstruct the liquid line temperature relief.
3. A $^7/_8$ in. (22.4 mm) diameter hole is provided for locating field power wiring. Actual hole size required depends on field wire sizing.
4. A 0.437 in. (11.1 mm) diameter hole is used for mounting unit.
5. Unit must have clearances as follows:
   Top - Do not restrict.
   Coil End - 72 in. (1829) from solid surface.
   Panel Side - 48 in. (1219) per NEC (National Electrical Code, U.S.A. Standard).
6. Unit height dimension for standard and low sound unit with stack fan option.
7. Installation in a pit is not recommended.
8. Unit can be handled using the fork truck lift pockets.
9. Dimensions shown in inches (mm).



TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW

Fig. 5 — 38AP Unit Dimensions, Sizes 025-030

UNIT		STANDARD WEIGHT, lb (kg)	CENTER OF GRAVITY, in. (mm)		HEIGHT, in. (mm)	SERVICE VALVE CONNECTIONS, in. (mm)	
			X	Y	H	Suction	Liquid
Standard	38APS040	1968 (893)	35.0 (869)	44.0 (1118)	73.0 (1854)	$2^1/_8$ (54)	$^7/_8$ (22)
	38APD040	2094 (950)	33.7 (856)	44.1 (1120)		$1^5/_8$ (41)	$^5/_8$ (16)
	38APS050	1977 (897)	34.9 (886)	44.0 (1118)		$2^1/_8$ (54)	$^7/_8$ (22)
	38APD050	2120 (961)	33.4 (848)	44.1 (1120)		$1^5/_8$ (41)	$^5/_8$ (16)
	38APD060	2227 (1010)	34.4 (874)	44.1 (1120)		$1^5/_8$ (41)	$^5/_8$ (16)
Low Sound	38APS040	2022 (917)	35.0 (869)	44.0 (1118)	78.5 (1994)	$2^1/_8$ (54)	$^7/_8$ (22)
	38APD040	2148 (974)	33.7 (856)	44.1 (1120)		$1^5/_8$ (41)	$^5/_8$ (16)
	38APS050	2031 (921)	34.9 (886)	44.0 (1118)		$2^1/_8$ (54)	$^7/_8$ (22)
	38APD050	2174 (986)	33.4 (848)	44.1 (1120)		$1^5/_8$ (41)	$^5/_8$ (16)
	38APD060	2299 (1043)	34.4 (874)	44.1 (1120)		$1^5/_8$ (41)	$^5/_8$ (16)

NOTES:
1. Be sure to use a wet rag to remove all valve cores before brazing field piping.
2. Do not cap or otherwise obstruct the liquid line temperature relief.
3. A $^7/_8$ in. (22.4 mm) diameter hole is provided for locating field power wiring. Actual hole size required depends on field wire sizing.
4. A 0.437 in. (11.1 mm) diameter hole is used for mounting unit.
5. Unit must have clearances as follows:
   Top - Do not restrict.
   Coil End - 72 in. (1829) from solid surface.
   Panel Side - 48 in. (1219) per NEC (National Electrical Code, U.S.A. Standard).
6. Unit height dimension for standard and low sound unit with stack fan option.
7. Installation in a pit is not recommended.
8. Unit can be handled using the fork truck lift pockets.
9. Dimensions shown in inches (mm).
10. Sizes 040 and 050 units have 3 condenser fans. Size 060 units have 4 condenser fans.

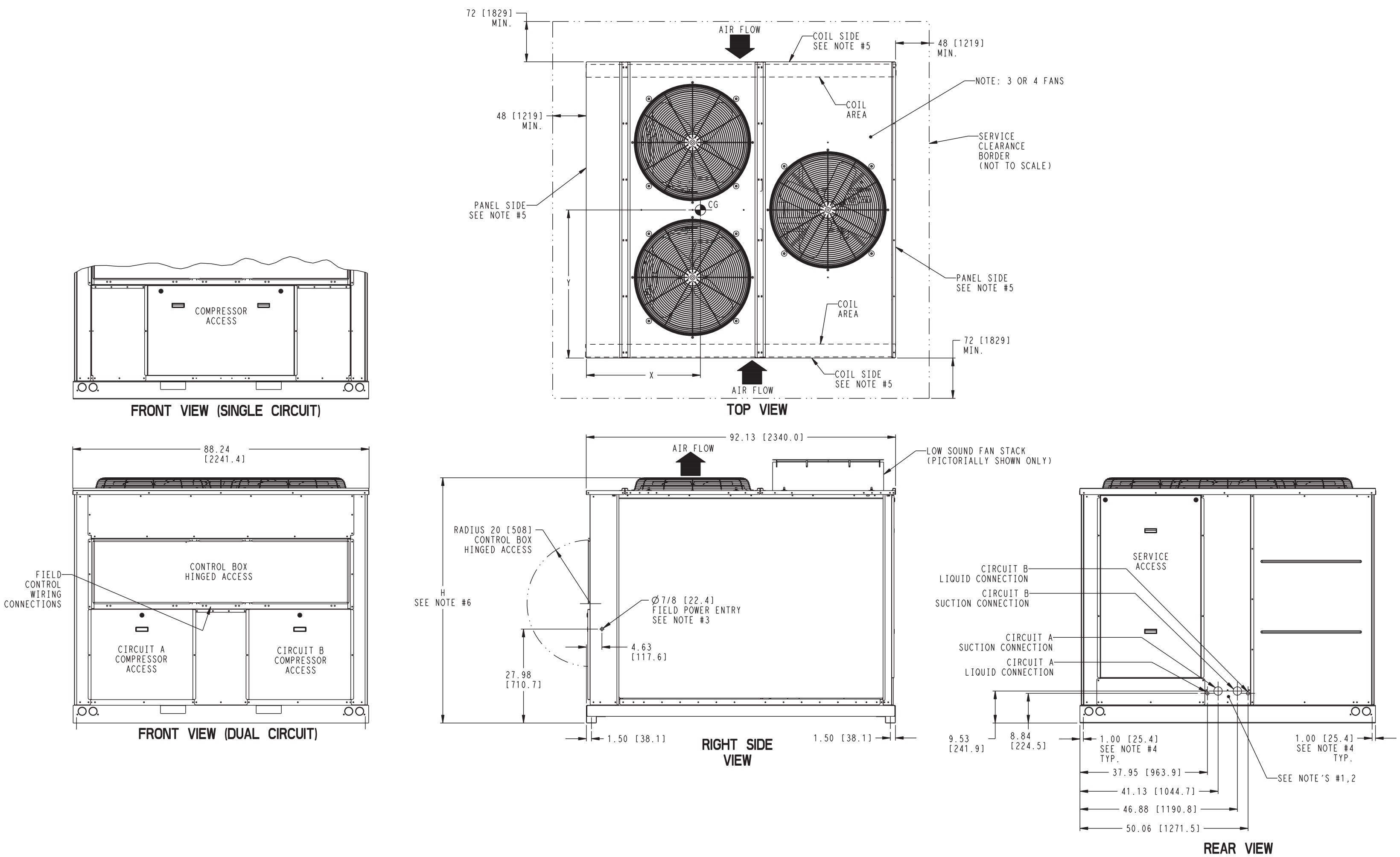
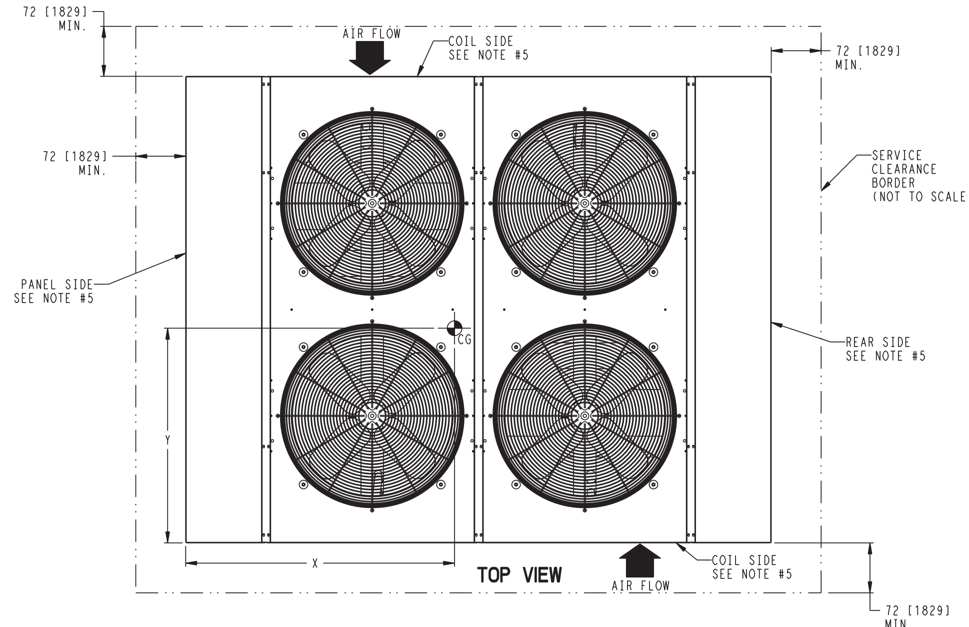
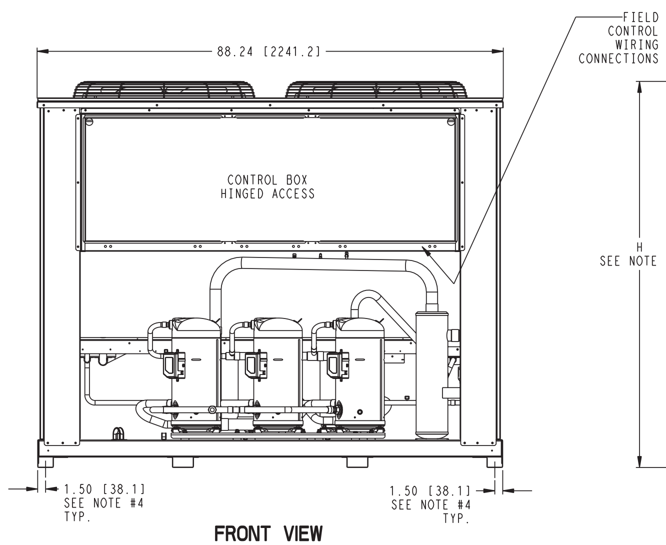


Fig. 6 — 38AP Unit Dimensions, Sizes 040-060

UNIT		STANDARD WEIGHT, lb (kg)	CENTER OF GRAVITY, in. (mm)		HEIGHT, in. (mm)	SERVICE VALVE CONNECTIONS, in. (mm)		
						Suction		Liquid
			X	Y	H	Circuit A	Circuit B	
Standard	38APD070	2450 (1111)	50.9 (1293)	40.6 (1031)	73.0 (1854)	2$^1/_8$ (54)	1$^5/_8$ (41)	$^7/_8$ (22)
Low Sound	38APD070	2522 (1144)	50.9 (1293)	40.6 (1031)	78.5 (1994)	2$^1/_8$ (54)	1$^5/_8$ (41)	$^7/_8$ (22)

NOTES:
1. Be sure to use a wet rag to remove all valve cores before brazing field piping.
2. Do not cap or otherwise obstruct the liquid line temperature relief.
3. A $^7/_8$ in. (22.4 mm) diameter hole is provided for locating field power wiring. Actual hole size required depends on field wire sizing.
4. A 0.437 in. (11.1 mm) diameter hole is used for mounting unit.
5. Unit must have clearances as follows:
   Top - Do not restrict.
   Coil, Panel and Rear Side - 72 in. (1829) from solid surface.
6. Unit height dimension for standard and low sound unit with stack fan option.
7. Installation in a pit is not recommended.
8. Unit can be handled using crane.
9. Dimensions shown in inches (mm).





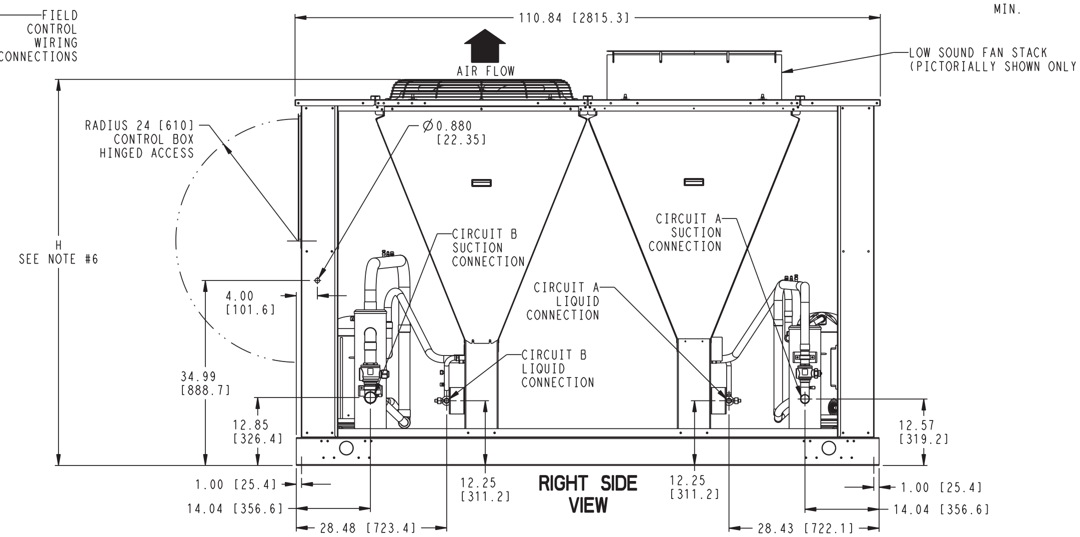
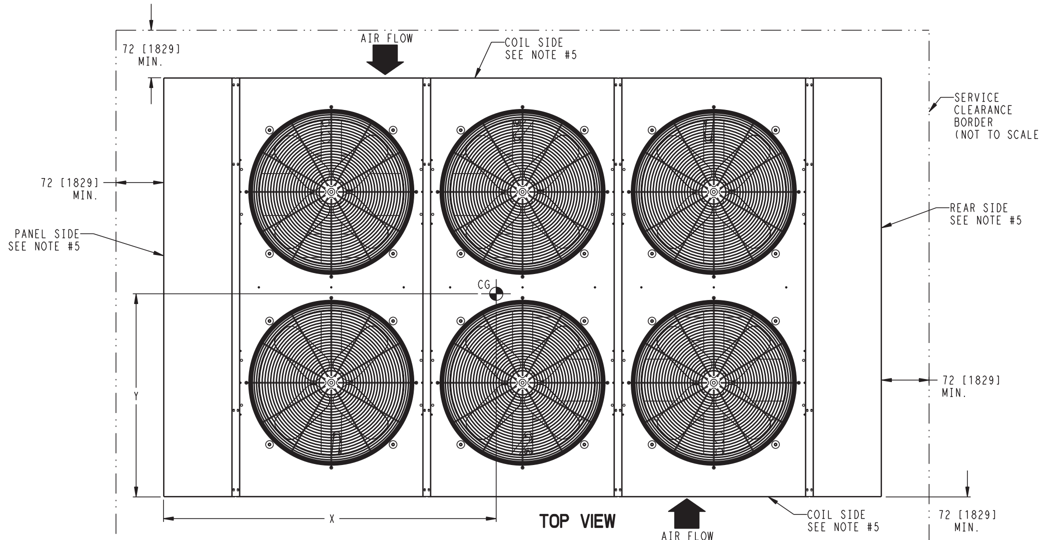


Fig. 7 — 38AP Unit Dimensions, Size 070

UNIT		STANDARD WEIGHT, lb (kg)	CENTER OF GRAVITY, in. (mm)		HEIGHT, in. (mm)	SERVICE VALVE CONNECTIONS, in. (mm)		
						Suction		Liquid
			X	Y	H	Circuit A	Circuit B	
Standard	38APD080	2610 (1184)	67.6 (1716)	40.2 (1020)	73.0 (1854)	$2^1/_8$ (54)	$1^5/_8$ (41)	$^7/_8$ (22)
	38APD090	2835 (1286)	72.4 (1839)	43.3 (1099)		$2^1/_8$ (54)		$^7/_8$ (22)
	38APD100	2844 (1290)	72.6 (1844)	43.3 (1099)		$2^1/_8$ (54)		$^7/_8$ (22)
Low Sound	38APD080	2700 (1225)	67.6 (1716)	40.2 (1020)	78.5 (1994)	$2^1/_8$ (54)	$1^5/_8$ (41)	$^7/_8$ (22)
	38APD090	2943 (1335)	72.4 (1839)	43.3 (1099)		$2^1/_8$ (54)		$^7/_8$ (22)
	38APD100	2952 (1339)	72.6 (1844)	43.3 (1099)		$2^1/_8$ (54)		$^7/_8$ (22)

NOTES:
1. Be sure to use a wet rag to remove all valve cores before brazing field piping.
2. Do not cap or otherwise obstruct the liquid line temperature relief.
3. A $^7/_8$ in. (22.4 mm) diameter hole is provided for locating field power wiring. Actual hole size required depends on field wire sizing.
4. A 0.437 in. (11.1 mm) diameter hole is used for mounting unit.
5. Unit must have clearances as follows:
   Top - Do not restrict.
   Coil, Panel and Rear Side - 72 in. (1829) from solid surface.
6. Unit height dimension for standard and low sound unit with stack fan option.
7. Installation in a pit is not recommended.
8. Unit can be handled using crane.
9. Dimensions shown in inches (mm).
10. Size 080 units have 5 condenser fans. Sizes 090 and 100 units have 6 condenser fans.



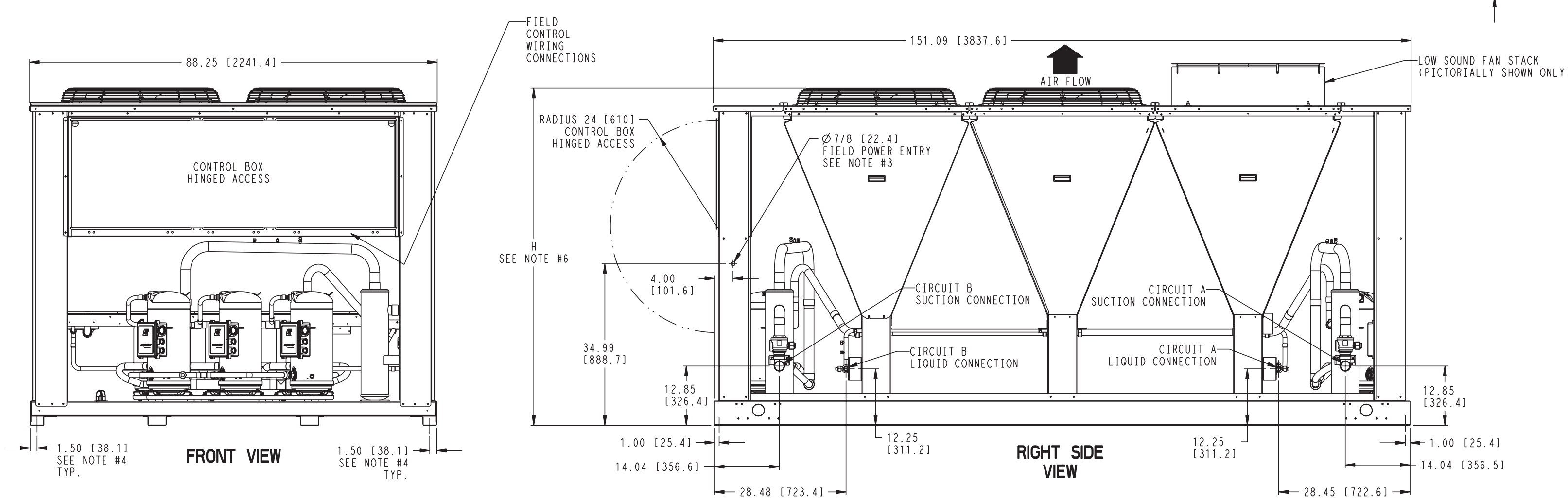
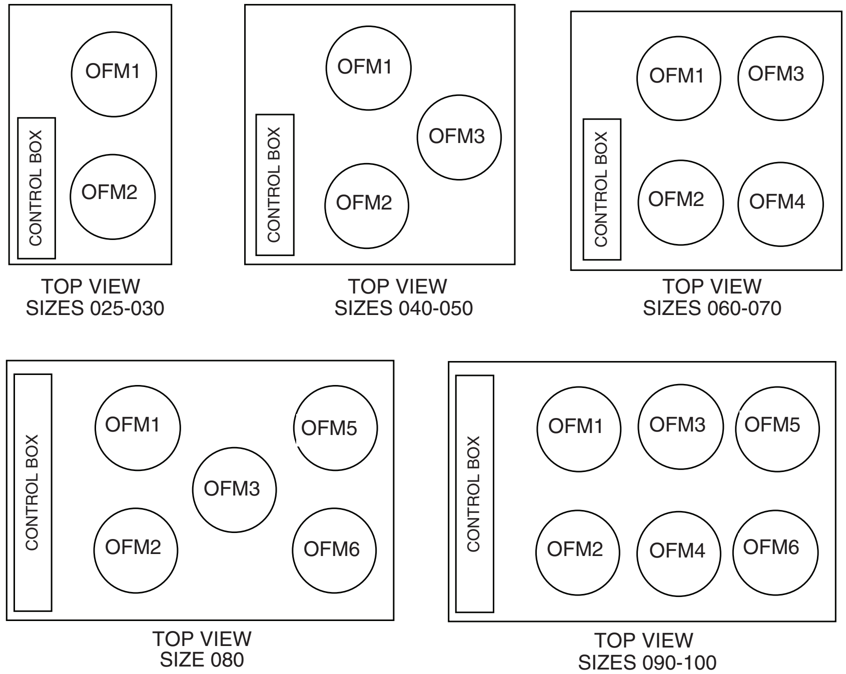
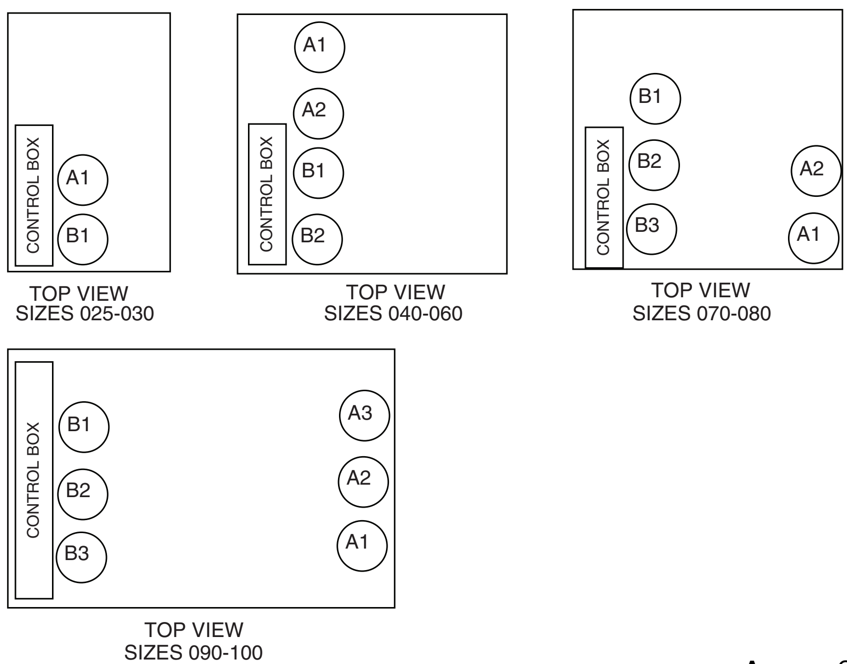


Fig. 8 — 38AP Unit Dimensions, Sizes 080-100

OUTDOOR FAN LAYOUT (Single and Dual Circuit)



COMPRESSOR LAYOUT DUAL CIRCUIT



LEGEND

A — Circuit 1 Compressor
B — Circuit 2 Compressor
OFM — Outdoor Fan

COMPRESSOR LAYOUT SINGLE CIRCUIT

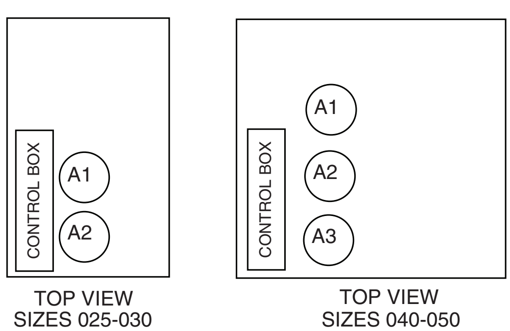
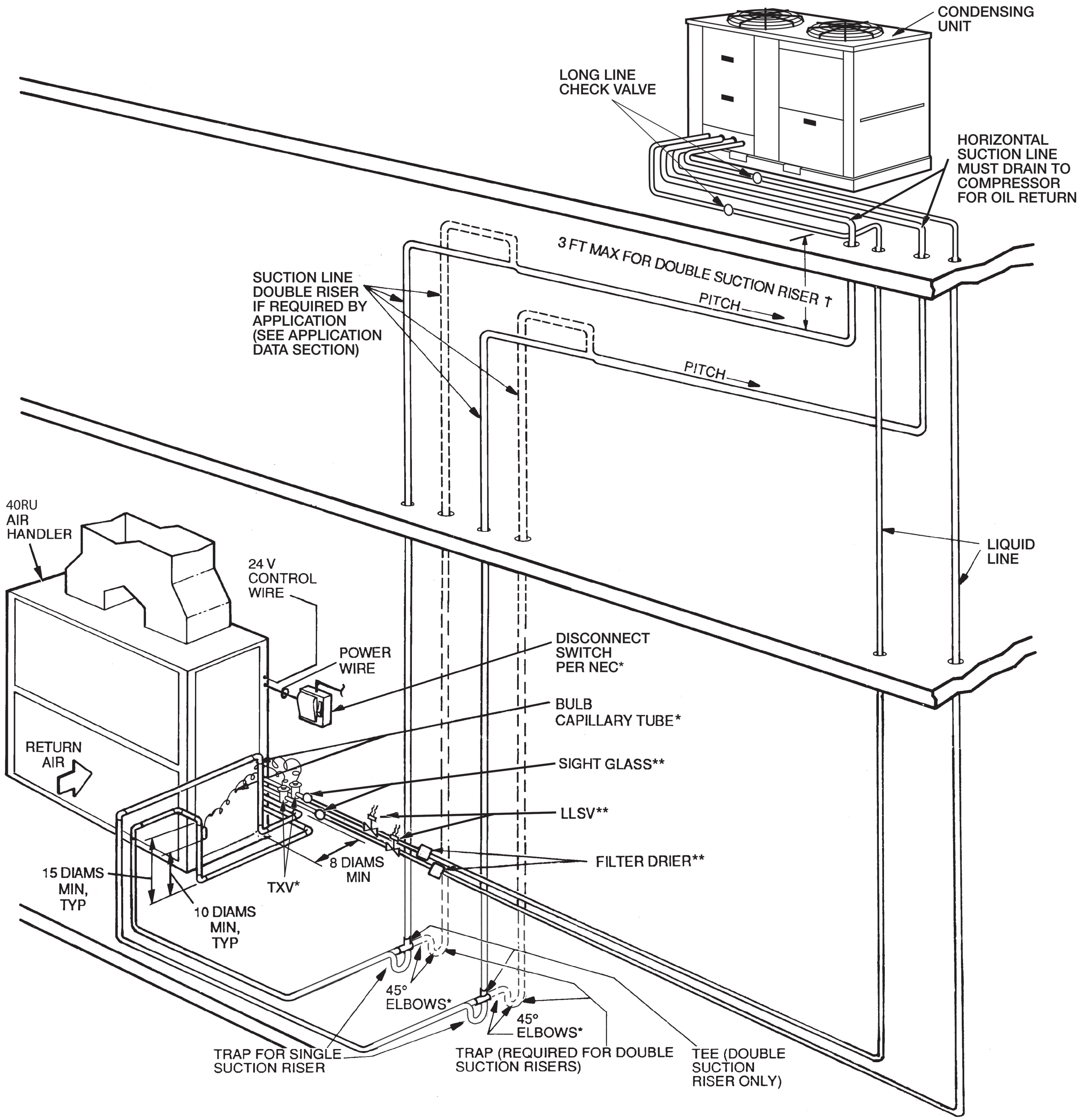


Fig. 9 — Outdoor Fan and Compressor Layout



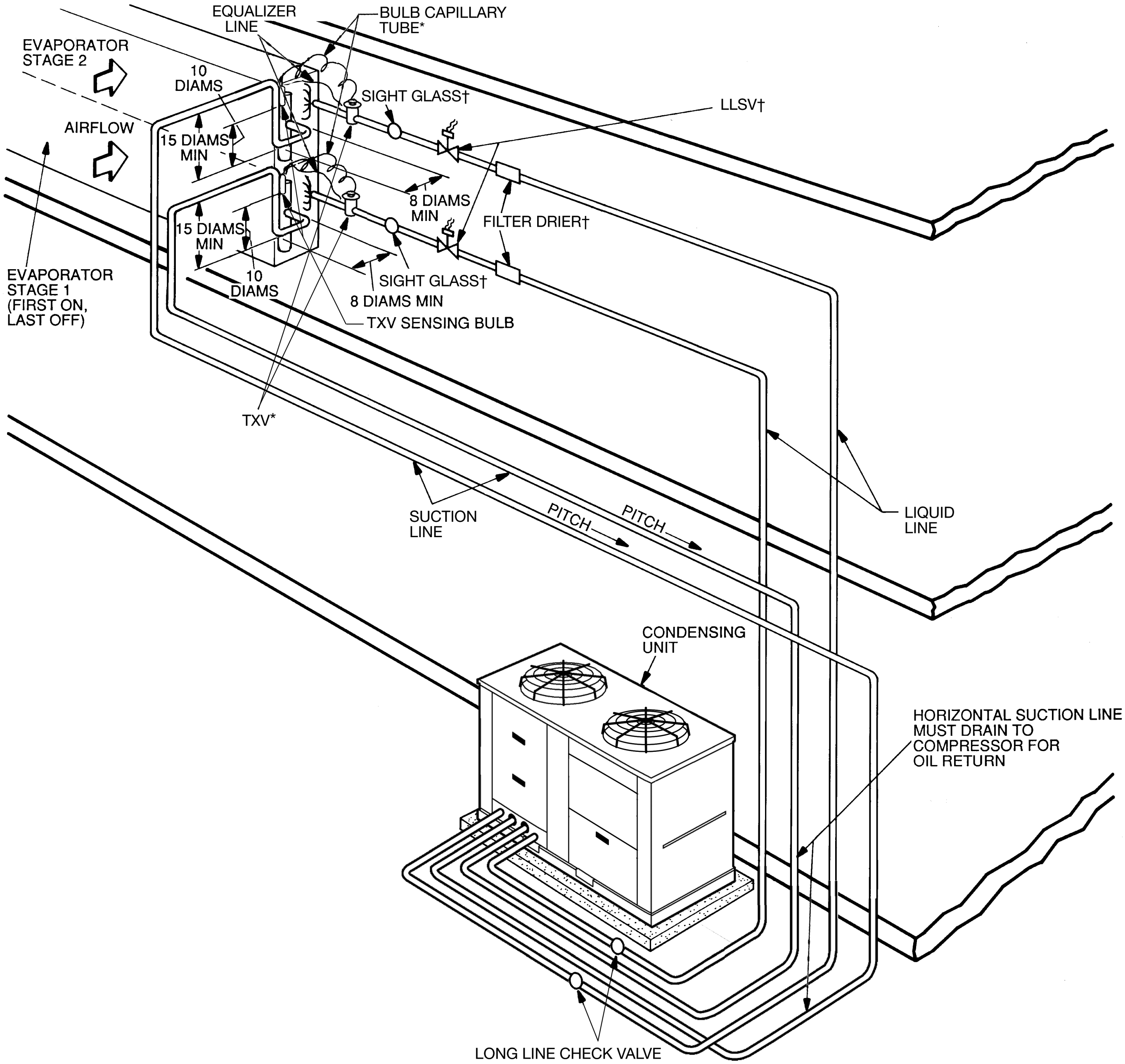
LEGEND

LLSV — Liquid Line Solenoid Valve
NEC — National Electrical Code
TXV — Thermostatic Expansion Valve
(solid pipe symbol) Piping
= = = = Double Riser Piping (if required)

*Field supplied.
†If double suction riser is required for piping system, size short riser (3 ft maximum) according to Fig. 12.
**Field supplied. See Table 6 for refrigerant specialties part numbers.

NOTES:
1. All piping must follow standard refrigerant piping techniques. Refer to Carrier System Design Manual for details.
2. All wiring must comply with the applicable local and national codes.
3. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
4. Install field-supplied disconnect switch in accordance with all local and national electrical codes.
5. Liquid line solenoid valves (solenoid drop control) are not required but are recommended to prevent refrigerant migration to the compressor.
6. Factory-supplied accumulator not shown.
7. Dual-circuit piping shown. Single-circuit piping is similar but would only have one suction line and one liquid line.
8. A field-supplied, 5% bleed port TXV is required for every application.
9. Sight glass, LLSV, and filter drier are field supplied.
10. Long line length check valves are required for liquid line installation on all linear line length applications of more than 100 ft (30.5 m). For any 025-030 size dual-circuit unit application where evaporator is located higher than the condensing unit, check valves are required for linear line length above 55 ft (16.8 m).

Fig. 10 — 38AP Unit Rooftop Installation



LEGEND

LLSV — Liquid Line Solenoid Valve
NEC — National Electrical Code
TXV — Thermostatic Expansion Valve
(pipe symbol) Piping

*Field supplied.
†Field supplied. See Table 6 for refrigerant specialties part numbers.

NOTES:
1. All piping must follow standard refrigerant piping techniques. Refer to Carrier System Design Manual for details.
2. All wiring must comply with the applicable local and national codes.
3. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
4. Install field-supplied disconnect switch in accordance with all local and national electrical codes.
5. Liquid line solenoid valves (solenoid drop control) are not required but are recommended to prevent refrigerant migration to the compressor.
6. Factory-supplied accumulator not shown.
7. Dual-circuit piping shown. Single-circuit piping is similar but would only have one suction line and one liquid line.
8. A field-supplied, 5% bleed port TXV is required for every application.
9. Sight glass, LLSV, and filter drier are field supplied.
10. Long line length check valves are required for liquid line installation on all linear line length applications of more than 100 ft (30.5 m). For any 025-030 size dual-circuit unit application where evaporator is located higher than the condensing unit, check valves are required for linear line length above 55 ft (16.8 m).

Fig. 11 — 38AP Unit Ground Level Installation

Table 6 — Refrigerant Specialties Part Numbers

38APS UNIT SIZE	CIRCUIT A					
	Tons	LL Size (in.)	LLSV	LLSV Coil 24-v, 50/60 Hz	Sight Glass	Filter Drier
025	24.0	5/8 7/8	EF680028 EF680029	EF680032 EF680032	KM680005 KM680006	KH680002 KH680003
027	26.7	5/8 7/8	EF680028 EF680029	EF680032 EF680032	KM680005 KM680006	KH680002 KH680003
030	31.1	5/8 7/8 1 1/8	EF680028 EF680029 EF680030	EF680032 EF680032 EF680032	KM680005 KM680006 KM680007	KH680002 KH680003 KH680004
040	39.8	5/8 7/8 1 1/8	EF680028 EF680029 EF680030	EF680032 EF680032 EF680032	KM680005 KM680006 KM680007	KH680003* KH680003 KH680004
050	48.1	7/8 1 1/8	EF680029 EF680030	EF680032 EF680032	KM680006 KM680007	KH680003 KH680004

38APD UNIT SIZE	CIRCUIT A						CIRCUIT B					
	Tons	LL Size (in.)	LLSV	LLSV Coil 24-v, 50/60 Hz	Sight Glass	Filter Drier	Tons	LL Size (in.)	LLSV	LLSV Coil 24-v, 50/60 Hz	Sight Glass	Filter Drier
025	12.0	1/2 5/8	EF680031 EF680028	EF680032 EF680032	KM680004 KM680005	KH680001 KH680002	12.0	1/2 5/8	EF680031 EF680028	EF680032 EF680032	KM680004 KM680005	KH680001 KH680002
027	13.3	1/2 5/8	EF680031 EF680028	EF680032 EF680032	KM680004 KM680005	KH680001 KH680002	13.3	1/2 5/8	EF680031 EF680028	EF680032 EF680032	KM680004 KM680005	KH680001 KH680002
030	15.6	1/2 5/8 7/8	EF680031 EF680028 EF680029	EF680032 EF680032 EF680032	KM680004 KM680005 KM680006	KH680001 KH680002 KH680003	15.6	1/2 5/8 7/8	EF680031 EF680028 EF680029	EF680032 EF680032 EF680032	KM680004 KM680005 KM680006	KH680001 KH680002 KH680003
040	21.0	— 5/8 7/8	— EF680028 EF680029	— EF680032 EF680032	— KM680005 KM680006	— KH680002 KH680003	18.2	1/2 5/8 7/8	EF680028 EF680029 EF680029	EF680032 EF680032 EF680032	KM680004 KM680005 KM680006	KH680001 KH680002 KH680003
050	23.8	5/8 7/8	EF680028 EF680029	EF680032 EF680032	KM680005 KM680006	KH680002 KH680003	26.3	5/8 7/8	EF680028 EF680029	EF680032 EF680032	KM680005 KM680006	KH680002 KH680003
060	26.8	5/8 7/8 —	EF680028 EF680029 —	EF680032 EF680032 —	KM680005 KM680006 —	KH680002 KH680003 —	31.5	5/8 7/8 1 1/8	EF680028 EF680029 EF680030	EF680032 EF680032 EF680032	KM680005 KM680006 KM680007	KH680002 KH680003 KH680004
070	31.8	5/8 7/8 1 1/8	EF680028 EF680029 EF680030	EF680032 EF680032 EF680032	KM680005 KM680006 KM680007	KH680002 KH680003 KH680004	35.5	5/8 7/8 1 1/8	EF680028 EF680029 EF680030	EF680032 EF680032 EF680032	KM680005 KM680006 KM680007	KH680002 KH680003 KH680004
080	31.3	5/8 7/8 1 1/8	EF680028 EF680029 EF680030	EF680032 EF680032 EF680032	KM680005 KM680006 KM680007	KH680002 KH680003 KH680004	46.7	5/8 7/8 1 1/8	EF680028 EF680029 EF680030	EF680032 EF680032 EF680032	KM680005 KM680006 KM680007	KH680003* KH680003 KH680004
090	40.3	5/8 7/8 1 1/8	EF680028 EF680029 EF680030	EF680032 EF680032 EF680032	KM680005 KM680006 KM680007	KH680003* KH680003 KH680004	47.1	— 7/8 1 1/8	— EF680029 EF680030	— EF680032 EF680032	— KM680006 KM680007	— KH680003 KH680004
100	48.0	7/8 1 1/8	EF680029 EF680030	EF680032 EF680032	KM680006 KM680007	KH680003 KH680004	48.0	7/8 1 1/8	EF680029 EF680030	EF680032 EF680032	KM680006 KM680007	KH680003 KH680004

LEGEND

LL — Liquid Line
LLSV — Liquid Line Solenoid Valve

*Bushing required to fit 5/8 in. line.

NOTE:
1. Filter driers have been sized based upon 1 to 2 psig pressure drop clean in accordance with ARI Standard 710.
2. All pipe sizes are OD inches. Equivalent sizes in millimeters follow:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1 1/8	28.6

Step 3 — Make Refrigerant Piping Connections

⚠ CAUTION

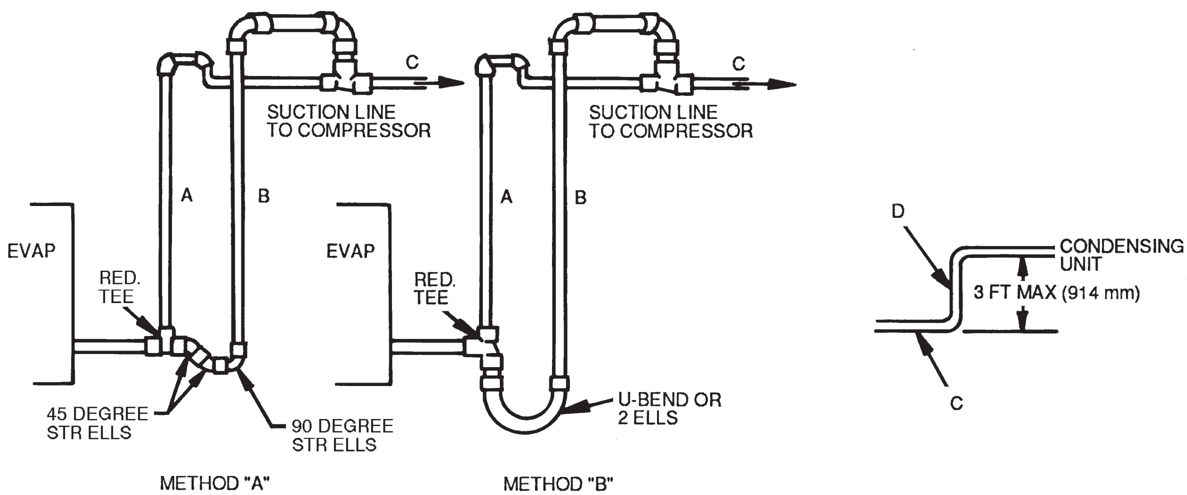
Do NOT bury refrigerant piping underground. Failure to comply could result in equipment damage.

The units have large suction lines to minimize friction losses. The units also have the ability to operate at low capacity. Because of these capabilities, use special care with suction piping and suction risers to ensure proper compressor oil return under all operating conditions. If the evaporator is above the condensing unit, the maximum allowable vertical separation between the condensing unit and the evaporator is 75 ft (22.9 m) for all units. Size suction lines in accordance with Table 7 and Fig. 12.

SIZE REFRIGERANT LINES — Consider the length of piping required between the condensing unit and indoor unit (evaporator), the amount of liquid lift, and compressor oil return. Suction and liquid lines should be sized in accordance with Table 7. *Double suction risers may be required* if condensing unit is located above the evaporator to assure proper oil return at minimum load operating conditions. See Table 7 and Fig. 12. Note the indoor unit installtion instructions for additional information.

⚠ CAUTION

The field-supplied liquid line solenoid valve *must* be installed at the evaporator to avoid possible compressor damage during unit operation if the maximum allowable evaporator size is exceeded per Table 8. See Fig. 13 (for 38APD025-100 dual-circuit units), or Fig. 14 (for 38APS025-050 single-circuit units).



LEGEND

A — Pipe A, Suction Riser, without Trap
B — Pipe B, Suction Riser with Trap
C — Suction Line to Condensing Unit
D — Pipe D, Suction Riser Short Lift
RED. — Reducer
STR — Street

NOTES:
1. Short riser, pipe D, is used when routing suction line to condensing unit connection. See table at right.
2. See Table 7 for values of A, B, and C.

38AP UNIT SIZE	D PIPE DIAMETER					
	Dual Circuit				Single Circuit	
	Circuit A		Circuit B			
	in.	mm	in.	mm	in.	mm
025	1 1/8	29	1 1/8	29	1 3/8	35
027	1 1/8	29	1 1/8	29	1 3/8	35
030	1 1/8	29	1 1/8	29	1 3/8	35
040	1 3/8	35	1 1/8	29	1 5/8	41
050	1 3/8	35	1 3/8	35	1 5/8	41
060	1 3/8	35	1 5/8	41	—	—
070	1 5/8	41	1 5/8	41	—	—
080	1 5/8	41	1 5/8	41	—	—
090	1 5/8	41	1 5/8	41	—	—
100	1 5/8	41	1 5/8	41	—	—

Fig. 12 — Double Suction Riser Construction

Table 7 — Refrigerant Piping Requirements

38APS025-050 Single-Circuit Units (60 Hz)

38APS UNIT SIZE	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)															
	0-25		25-50		50-75		75-100		100-125		125-150		150-175		175-200	
	(0-7.6)		(7.6-15.2)		(15.2-22.9)		(22.9-30.5)		(30.5-38.1)		(38.1-45.7)		(45.7-53.3)		(53.3-61.0)	
	L	S	L	S	L	S	L	S	L	S	L	S	L	S	L	S
025	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
027	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
030	5/8	1 3/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8
040	5/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8
050	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8

38APD025-100 Dual-Circuit Units (60 Hz)

38APD UNIT SIZE		TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)															
		0-25		25-50		50-75		75-100		100-125		125-150		150-175		175-200	
		(0-7.6)		(7.6-15.2)		(15.2-22.9)		(22.9-30.5)		(30.5-38.1)		(38.1-45.7)		(45.7-53.3)		(53.3-61.0)	
		L	S	L	S	L	S	L	S	L	S	L	S	L	S	L	S
025	Ckt A	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8
	Ckt B	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8
027	Ckt A	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8
	Ckt B	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8
030	Ckt A	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8
	Ckt B	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8
040	Ckt A	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
	Ckt B	1/2	1 1/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8
050	Ckt A	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
	Ckt B	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
060	Ckt A	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
	Ckt B	5/8	1 3/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 1/8
070	Ckt A	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 1/8
	Ckt B	5/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8
080	Ckt A	5/8	1 3/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 1/8
	Ckt B	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8
090	Ckt A	5/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8
	Ckt B	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8
100	Ckt A	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8
	Ckt B	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8	1 1/8	2 5/8

LEGEND

L — Liquid Line
S — Suction Line

NOTES:

1. Shading indicates double suction riser required on units if condensing unit is located higher than evaporator.
2. Pipe sizes are based on an equivalent length equal to the maximum length of interconnecting piping, shown for each column, plus 50% for fittings. Example: Equivalent length = Maximum linear length x 1.5.
3. Suction and liquid line sizing is based on pressure drop equivalent to 2 F (1.1 C) at nominal rating conditions.
4. All pipe sizes are OD inches. Equivalent sizes in millimeters follow:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1 1/8	28.6
1 3/8	34.9
1 5/8	41.3
2 1/8	54.0
2 5/8	66.7

Table 7 — Refrigerant Piping Requirements (cont)

38APS025-050 Single-Circuit Units (50 Hz)

38APS UNIT SIZE	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)															
	0-25 (0-7.6)		25-50 (7.6-15.2)		50-75 (15.2-22.9)		75-100 (22.9-30.5)		100-125 (30.5-38.1)		125-150 (38.1-45.7)		150-175 (45.7-53.3)		175-200 (53.3-61.0)	
	L	S	L	S	L	S	L	S	L	S	L	S	L	S	L	S
025	5/8	1 1/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
027	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
030	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
040	5/8	1 3/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
050	5/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8

38APD025-100 Dual-Circuit Units (50 Hz)

38APD UNIT SIZE		TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)															
		0-25 (0-7.6)		25-50 (7.6-15.2)		50-75 (15.2-22.9)		75-100 (22.9-30.5)		100-125 (30.5-38.1)		125-150 (38.1-45.7)		150-175 (45.7-53.3)		175-200 (53.3-61.0)	
		L	S	L	S	L	S	L	S	L	S	L	S	L	S	L	S
025	Ckt A	1/2	1 1/8	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8
	Ckt B	1/2	1 1/8	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8
027	Ckt A	1/2	1 1/8	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8
	Ckt B	1/2	1 1/8	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8
030	Ckt A	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8
	Ckt B	1/2	1 1/8	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8
040	Ckt A	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8
	Ckt B	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8
050	Ckt A	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
	Ckt B	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
060	Ckt A	5/8	1 3/8	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
	Ckt B	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
070	Ckt A	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
	Ckt B	5/8	1 3/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
080	Ckt A	5/8	1 3/8	5/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8
	Ckt B	5/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8
090	Ckt A	5/8	1 3/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 1/8
	Ckt B	5/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8
100	Ckt A	5/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8
	Ckt B	5/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	7/8	2 1/8	1 1/8	2 1/8	1 1/8	2 5/8	1 1/8	2 5/8

LEGEND

L — Liquid Line
S — Suction Line

NOTES:
1. Shading indicates double suction riser required on units if condensing unit is located higher than evaporator.
2. Pipe sizes are based on an equivalent length equal to the maximum length of interconnecting piping, shown for each column, plus 50% for fittings. Example: Equivalent length = Maximum linear length x 1.5.
3. Suction and liquid line sizing is based on pressure drop equivalent to 2 F (1.1 C) at nominal rating conditions.
4. All pipe sizes are OD inches. Equivalent sizes in millimeters follow:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1 1/8	28.6
1 3/8	34.9
1 5/8	41.3
2 1/8	54.0
2 5/8	66.7

Table 7 — Refrigerant Piping Requirements (cont)

38APS025-50 Single-Circuit Units Double Suction Riser (60 Hz)

38APS UNIT SIZE	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)																							
	0-25 (0-7.6)			25-50 (7.6-15.2)			50-75 (15.2-22.9)			75-100 (22.9-30.5)			100-125 (30.5-38.1)			125-150 (38.1-45.7)			150-175 (45.7-53.3)			175-200 (53.3-61.0)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
025	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
027	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
030	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
040	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8
050	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8

38APD025-100 Dual-Circuit Units Double Suction Riser (60 Hz)

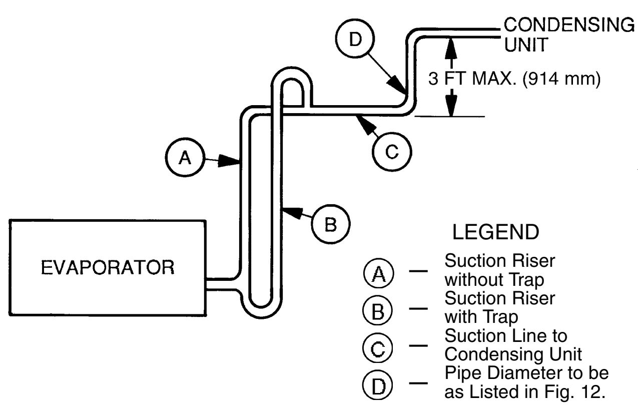
38APD UNIT SIZE		TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)																							
		0-25 (0-7.6)			25-50 (7.6-15.2)			50-75 (15.2-22.9)			75-100 (22.9-30.5)			100-125 (30.5-38.1)			125-150 (38.1-45.7)			150-175 (45.7-53.3)			175-200 (53.3-61.0)		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
025	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ckt B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
027	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ckt B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
030	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ckt B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
040	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8
050	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
060	Ckt A	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
070	Ckt A	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8
080	Ckt A	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8
090	Ckt A	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8
	Ckt B	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8
100	Ckt A	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8
	Ckt B	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8

LEGEND

— — Not Required
Pipe A — Suction Riser without Trap
Pipe B — Suction Riser with Trap
Pipe C — Suction Line Condensing Unit

1. Refer to the figure located to the right for suction line piping locations.
2. Pipe sizes are based on an equivalent length equal to the maximum length of interconnecting piping, shown for each column, plus 50% for fittings.
3. Suction and liquid line sizing is based on pressure drop equivalent to 2 F (1.1 C) at nominal rating conditions.
4. All pipe sizes are OD inches. Equivalent sizes in millimeters follow:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1 1/8	28.6
1 3/8	34.9
1 5/8	41.3
2 1/8	54.0
2 5/8	66.7



SUCTION LINE PIPING

Table 7 — Refrigerant Piping Requirements (cont)

38APS025-50 Single-Circuit Units Double Suction Riser (50 Hz)

38APS UNIT SIZE	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)																							
	0-25 (0-7.6)			25-50 (7.6-15.2)			50-75 (15.2-22.9)			75-100 (22.9-30.5)			100-125 (30.5-38.1)			125-150 (38.1-45.7)			150-175 (45.7-53.3)			175-200 (53.3-61.0)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
025	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
027	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
030	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
040	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
050	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8

38APD025-100 Dual-Circuit Units Double Suction Riser (50 Hz)

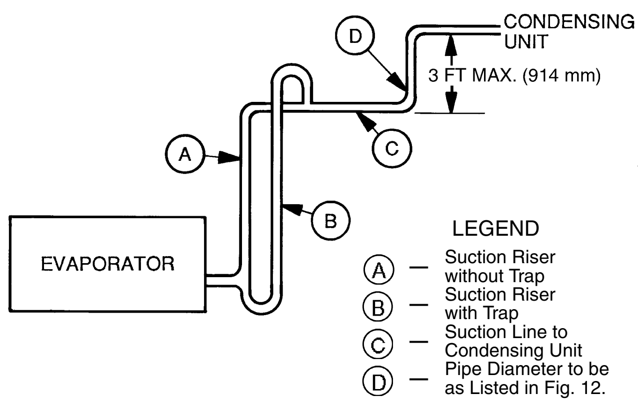
38APD UNIT SIZE		TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)																							
		0-25 (0-7.6)			25-50 (7.6-15.2)			50-75 (15.2-22.9)			75-100 (22.9-30.5)			100-125 (30.5-38.1)			125-150 (38.1-45.7)			150-175 (45.7-53.3)			175-200 (53.3-61.0)		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
025	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ckt B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
027	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ckt B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
030	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ckt B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
040	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
050	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
060	Ckt A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
070	Ckt A	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
080	Ckt A	—	—	—	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8
090	Ckt A	—	—	—	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8
	Ckt B	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8
100	Ckt A	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8
	Ckt B	—	—	—	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	1 5/8	2 1/8	2 5/8	1 5/8	2 1/8	2 5/8

LEGEND

— — Not Required
Pipe A — Suction Riser without Trap
Pipe B — Suction Riser with Trap
Pipe C — Suction Line Condensing Unit

1. Refer to the figure located to the right for suction line piping locations.
2. Pipe sizes are based on an equivalent length equal to the maximum length of interconnecting piping, shown for each column, plus 50% for fittings.
3. Suction and liquid line sizing is based on pressure drop equivalent to 2 F (1.1 C) at nominal rating conditions.
4. All pipe sizes are OD inches. Equivalent sizes in millimeters follow:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1 1/8	28.6
1 3/8	34.9
1 5/8	41.3
2 1/8	54.0
2 5/8	66.7



SUCTION LINE PIPING

LIQUID LINE SOLENOID VALVE — Field-supplied liquid line solenoid valve(s) must be installed at the evaporator if coil surface area is exceeded per Table 8. Install liquid line solenoid valve just ahead of the TXVs (thermostatic expansion valves) which will be mounted at the evaporator. See Fig. 13 (for 38APD025-100 dual-circuit units), or Fig. 14 (for 38APS025-050 single-circuit units). Refer to Table 6.

THERMOSTATIC EXPANSION VALVES — All 38AP units must be installed with 5% bleed TXVs to ensure proper unit operation.

To achieve good mixing of the refrigerant leaving the evaporator suction header for proper sensing by the TXV bulb:

1. Install a minimum of two 90-degree elbows upstream of the TXV bulb location. See Fig. 15 for dual-circuit units and Fig. 16 for single-circuit units.
2. Locate the TXV bulb on a vertical riser, where possible. If a horizontal location is necessary, secure the bulb at approximately the 4 o'clock position.

If an oil return connection is located at the bottom of the evaporator suction header, tee-in this connection ahead of first mixing elbow. See Fig. 15 (for dual-circuit units) or Fig. 16 (for single-circuit units). When the compressor is below the evaporator, the riser at the evaporator should extend to the top of the evaporator section. After the riser is installed, the suction line can elbow down immediately. Refer to the evaporator product data for sizing information.

LIQUID LINE FILTER DRIER — *Installation of a field-supplied filter drier and sight glasses in each refrigerant circuit is required.* Select the filter drier for maximum unit capacity and minimum pressure drop. Figure 13 (for dual-circuit units) or Fig. 14 (for single-circuit units) shows required location of solenoid valves and recommended locations for the filter driers and sight glasses. Complete the refrigerant piping from the evaporator to the condenser before opening the liquid and suction lines at the condenser. Refer to Table 6.

⚠ CAUTION

For all units with liquid lines of 100 ft (30.5 m) or more or any 025-030 size dual circuit unit application where evaporator is located higher than the condensing unit and liquid lines exceed 55 feet (16.8 m), a long line option kit must be installed to prevent compressor failure. The long line option kit must be mounted in the liquid line near the condensing unit. See Fig. 17.

LONG LINE APPLICATIONS — A long line option kit must be installed for:

1. Any 025-030 size dual circuit unit where the evaporator is located higher than the condensing unit and the linear line length exceeds 55 ft (16.8 m).
2. Any size dual or single circuit unit with linear line length of 100 ft (30.5 m) or more.

The kit consists of a liquid line check valve and a bypass check valve to prevent charge migration to compressor. The long line option kit must be mounted in the liquid line near the condensing unit. The kit may be mounted in any orientation, horizontally or vertically. See Fig. 17 for orientation and Fig. 11 for location.

HOT GAS BYPASS — Hot gas bypass is not recommended. If hot gas bypass is used, it should be introduced before the evaporator.

FINAL CONNECTION AND LEAK TEST

⚠ CAUTION

The 38AP unit is shipped with a nitrogen holding charge. Use caution when relieving unit pressure to avoid possible equipment damage or personal injury.

Relieve the pressure caused by the nitrogen holding charge. Connect liquid line and suction line to field piping. Refer to Fig. 5-8 for circuit orientation.

IMPORTANT: Protect the liquid and suction service valves from the heat of brazing. Schrader valve cores must be removed from the liquid and suction service valves before brazing in field connection piping to avoid damage. Reinsert cores after brazing is completed.

The refrigerant system must not be opened and exposed to atmosphere for longer than 15 minutes. Connection and pump-down should be made as soon as possible to avoid acids forming in the compressor POE (polyolester) oils, which could damage the compressors.

Leak test the entire system by using soap bubbles and nitrogen or R-410A and an electronic leak detector.

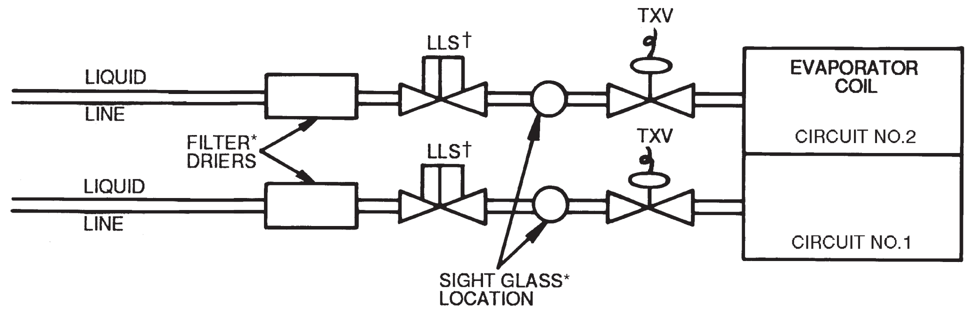
Purge nitrogen or recover R-410A from system after completion of leak-checking procedure. Repair leak if one is found. When finished, evacuate and dehydrate system using the following method.

EVACUATION AND DEHYDRATION — Because the 38AP systems use polyolester oil, which can absorb moisture, it is important to minimize the amount of time that the system interior is left exposed to the atmosphere. Minimizing the exposure time of the oil to the atmosphere will minimize the amount of moisture that needs to be removed during evacuation.

Once all of the piping connections are complete, leak test the unit and then pull a deep dehydration vacuum. Connect the vacuum pump to the charging valve in the suction line and to the liquid line service valve. For best results, it is recommended that a vacuum of at least 500 microns (0.5 mm Hg) be obtained. Afterwards, to ensure that no moisture is present in the system, perform a standing vacuum-rise test.

With the unit in deep vacuum (500 microns or less), isolate the vacuum pump from the system. Observe the rate-of-rise of the vacuum in the system. If the vacuum rises by more than 50 microns in a 30-minute time period, then continue the dehydration process. Maintain a vacuum on the system until the standing vacuum requirement is met. This will ensure a dry system.

By following these evacuation and dehydration procedures, the amount of moisture present in the system will be minimized. It is required that liquid line filter driers be installed between the condenser(s) and the expansion devices to capture any foreign debris and provide additional moisture removal capacity. Be sure to consider the pressure drop of the filter drier when determining piping requirements.

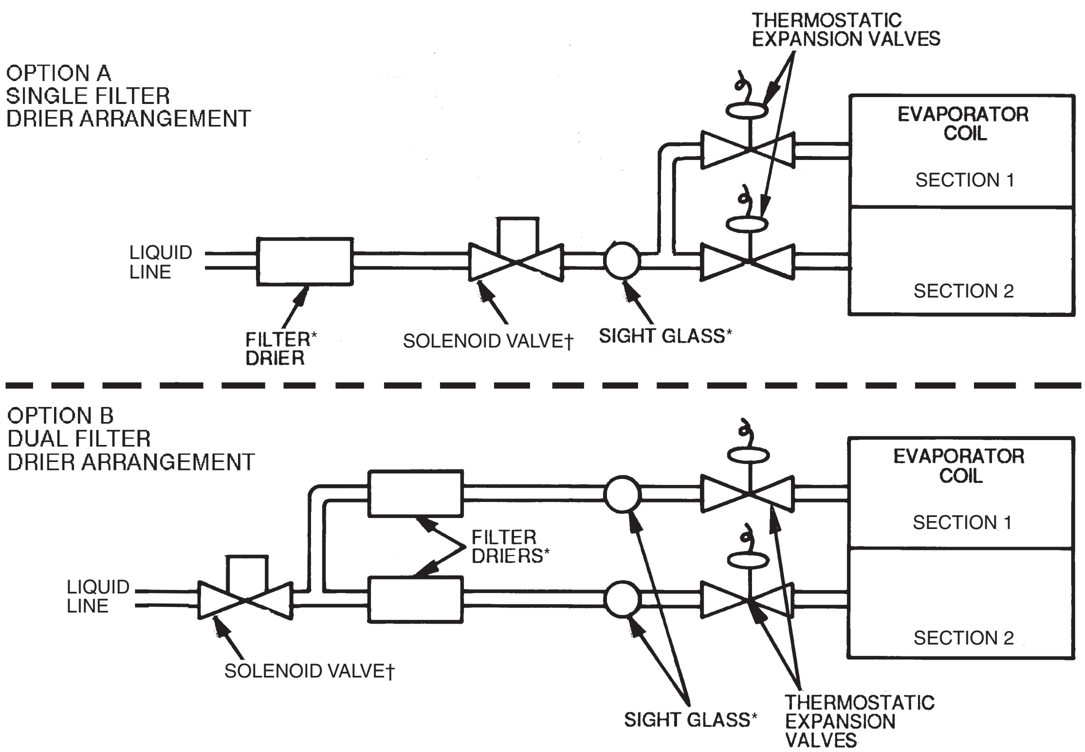


LEGEND

LLS — Liquid Line Solenoid
TXV — Thermostatic Expansion Valve

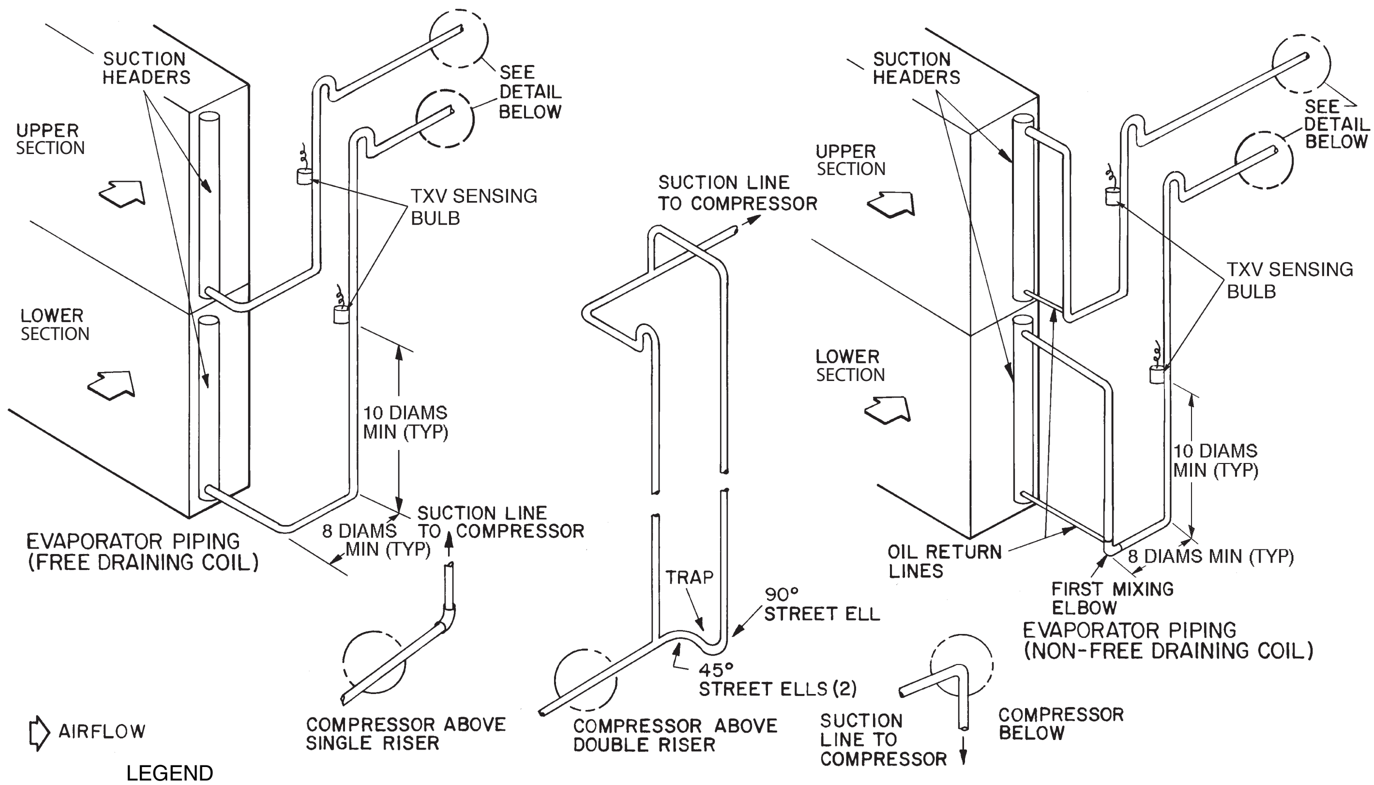
*Field-supplied.
†Field-supplied when required. See Table 8.

Fig. 13 — Required Location of Solenoid Valves and Recommended Filter Drier and Sight Glass Locations for 38APD025-100 Dual-Circuit Units



*Field-supplied.
†Field-supplied when required. See Table 8.

Fig. 14 — Required Location of Solenoid Valves and Recommended Filter Drier and Sight Glass Locations for 38APS025-050 Single-Circuit Units

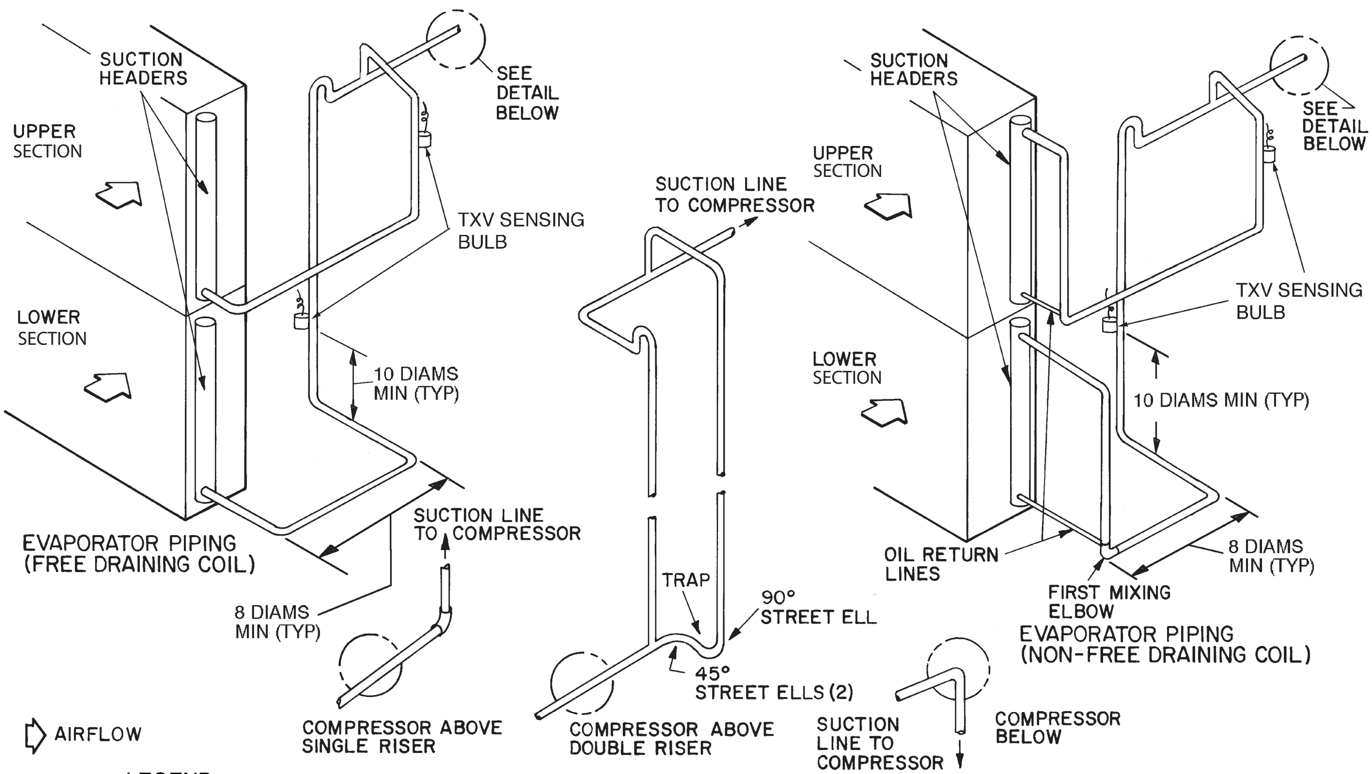


LEGEND

TXV — Thermostatic Expansion Valve
TYP — Typical

NOTE: For units with single condensate pan, lower coil section is first on, last off.

Fig. 15 — Typical Piping Connections for Face Split Coils for 38APD025-100 Dual-Circuit



LEGEND

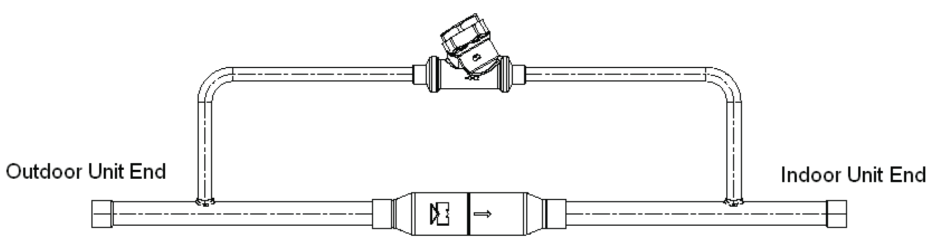
TXV — Thermostatic Expansion Valve
TYP — Typical

NOTE: For units with single condensate pan, lower coil section is first on, last off.

Fig. 16 — Typical Piping Connections for Face Split Coils for 38APS025-050 Single-Circuit Units

Table 8 — Requirements for Installation of Liquid Line Solenoid Valve

38AP UNIT SIZE	CIRCUIT	MAXIMUM ALLOWABLE EVAPORATOR SURFACE AREA WITHOUT LIQUID LINE SOLENOID VALVE (sq ft)				
		4-Row, 1/2 in. Tube	6-Row, 1/2 in. Tube	8-Row, 1/2 in. Tube	3-Row, 3/8 in. Tube	4-Row, 3/8 in. Tube
025	Circuit A	18.9	12.7	9.5	36.1	28.1
	Circuit B	18.9	12.7	9.5	36.1	28.1
	Single Circuit	37.9	25.3	18.9	72.3	56.3
027	Circuit A	21.7	14.5	10.9	41.4	32.3
	Circuit B	25.6	17.1	12.8	48.9	38.1
	Single Circuit	47.3	31.6	23.7	90.3	70.4
030	Circuit A	21.7	14.5	10.9	41.4	32.3
	Circuit B	25.6	17.1	12.8	48.9	38.1
	Single Circuit	47.3	31.6	23.7	90.3	70.4
040	Circuit A	47.3	31.6	23.7	—	—
	Circuit B	47.3	31.6	23.7	—	—
	Single Circuit	94.7	63.3	47.3	—	—
050	Circuit A	47.3	31.6	23.7	—	—
	Circuit B	47.3	31.6	23.7	—	—
	Single Circuit	94.7	63.3	47.3	—	—
060	Circuit A	47.3	31.6	23.7	—	—
	Circuit B	47.3	31.6	23.7	—	—
070	Circuit A	69.7	46.6	34.9	—	—
	Circuit B	69.7	46.6	34.9	—	—
080	Circuit A	69.7	46.6	34.9	—	—
	Circuit B	104.6	69.9	52.3	—	—
090	Circuit A	104.6	69.9	52.3	—	—
	Circuit B	104.6	69.9	52.3	—	—
100	Circuit A	104.6	69.9	52.3	—	—
	Circuit B	104.6	69.9	52.3	—	—



NOTE: Locate long line kit as close to the condensing unit as possible.

Fig. 17 — Long Line Option Kit Installation

Step 4 — Make Electrical Connections

⚠ WARNING

Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could cause personal injury.

IMPORTANT: When starting up this equipment for operation, be sure to check tightness of all electrical terminal connections, clamps, screws, etc., as they may have become loose during shipment. It is also advisable to re-tighten all electrical connections after equipment has been in operation and components have reacted to operating temperature.

POWER SUPPLY — The electrical characteristics of the available power supply must agree with the unit nameplate rating. Supply voltage must be within the limits shown in Tables 9-12. See Table 13 for incoming power options.

IMPORTANT: Operating unit on improper supply voltage or with excessive phase imbalance constitutes abuse and may adversely affect Carrier warranty.

⚠ CAUTION

Proper rotation of condenser fan(s) MUST be verified before compressors are started. Consult the Controls, Start-Up and Operation guide provided with the 38AP units for correct procedure. Failure to comply could result in possible equipment damage.

POWER WIRING — All power wiring must comply with applicable local and national codes. Install field-supplied branch circuit fused disconnect per NEC (National Electrical Code, U.S.A) of a type that can be locked OFF or OPEN. Disconnect must be within sight and readily accessible from the unit in compliance with NEC Article 440-14.

General Wiring Notes:

1. The control circuit does NOT require a separate power source. Control circuit power is obtained by a step-down transformer from the main three-phase power supply. Be sure that the appropriate connection tap is connected on all transformers for the supply voltage.
2. A low-voltage terminal strip (LVT) is provided for field-wired control devices.

NOTE: The field-supplied disconnect should never be off except when unit is being serviced or is to be down for a prolonged period.

3. Power entry is at one end only.
4. All field power enters the unit through a hole located in the corner post of the unit or the bottom of the control box shelf. Refer to Fig. 18 for field power wiring details. Refer to Fig. 5-8 for exact location of field power entry.
5. Terminals for field power supply are suitable only for copper conductors. Insulation must be rated 75 C minimum.
6. Units with high short circuit ratings and terminal block option require that specific fuses be applied to achieve this rating. Refer to Table 13.

CONTROL POWER — Control power is obtained from the main power supply and does NOT require a separate source. A toggle switch (marked Emergency On-Off on the unit label diagram and by the switch) allows the control circuit to be manually disconnected when necessary. Crankcase heaters are in an operable state when this switch is in the Off position. All field control wiring must comply with applicable local and national codes.

IMPORTANT: For 208-v systems, the connection tap for all transformers must be changed. The factory default setting is for 230-v. Failure to connect to the proper tap may result in unreliable operation.

FIELD CONTROL WIRING — The standard unit control is microprocessor based which supports multiple control configurations. See Fig. 19 for EAT (evaporator air temperature sensor) and SAT (supply air temperature sensor) layout. Figures 20-24 show specific field wiring, depending on unit configuration and desired control requirements.

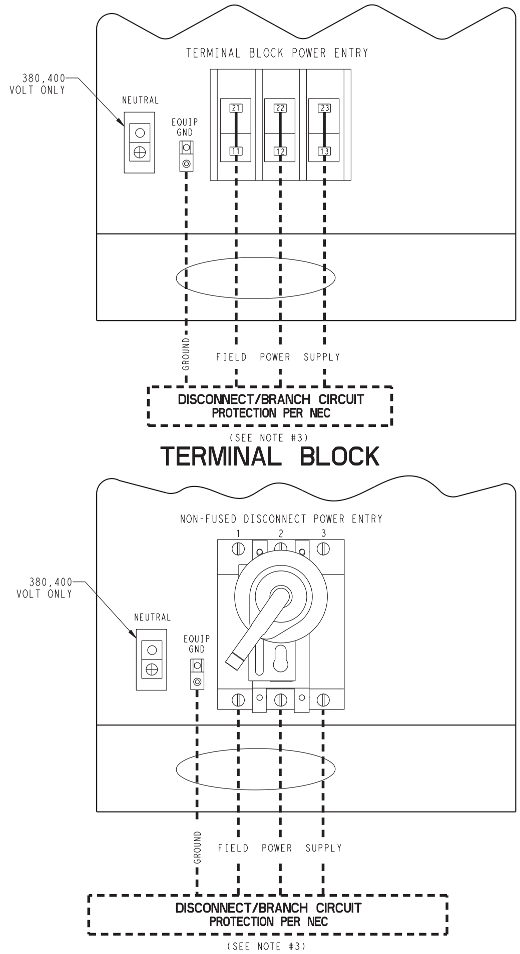
Constat Volume Application Control Options

1. Two-Stage Thermostat (Part No. 33CS2PP2S-01) — Refer to Fig. 20.
2. Two-Stage Thermostat (Part No. 33CS2PP2S-01) with Multi-Step Control — Refer to Fig. 21. This thermostat also requires installation of supply-air temperature sensor and return-air temperature sensor (Part No. 33ZCSENSAT).
3. Space Sensor Control — Refer to Fig. 22. This control also requires installation of supply-air temperature sensor and return-air temperature sensor (Part No. 33ZCSENSAT).
   a. Space Temperature Sensor with Occupancy Override Button (Part No. 33ZCT55SPT)
   b. Space Temperature Sensor with Occupancy Override Button and Set Point Adjustment Slidebar (Part No. 33ZCT56SPT)
   c. Space Temperature Sensor with Occupancy Override Button, Set Point Adjustment Slidebar, and LCD (liquid crystal display) Display (Part No. 33ZCT59SPT)

Variable Air Volume Application Control Options

1. Discharge-air temperature control requires installation of supply-air temperature sensor and return-air temperature sensor (Part No. 33ZCSENSAT). Refer to Fig. 23.
2. Interface with building automation system may require EMM (energy management module) or translator accessory. Refer to Fig. 23.

Energy Management Module (EMM) Option — The EMM is available for factory or field installation. See Fig. 24 for EMM field wiring.

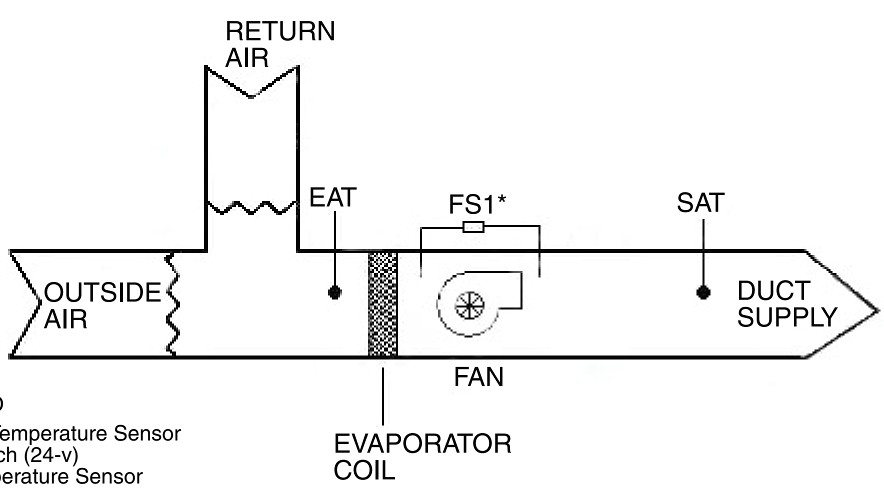


LEGEND

EQUIP GND — Equipment Ground
NEC — National Electrical Code

NOTES:
1. Factory wiring is in accordance with UL 1995 standards. Field modifications or additions must be in compliance with all applicable codes.
2. All units or modules have single point primary power connection. Main power must be supplied from a field or factory-supplied disconnect.
3. Wiring for main field supply must be rated 75 C. Use copper conductors only.
   a. Incoming wire size range for terminal block with MCA (minimum circuit amps) up to 175 amps is 14 AWG (American Wire Gage) to 2/0.
   b. Incoming wire size range for terminal block with MCA from 175.1 amps to 420 amps is 2 AWG to 600 kcmil.
   c. Incoming wire size range for non-fused disconnect with MCA up to 100 amps is 14 AWG to 1/0.
   d. Incoming wire size range for non-fused disconnect with MCA from 100.1 amp to 200 amps is 6 AWG to 350 kcmil.
   e. Incoming wire size range for non-fused disconnect with MCA from 200.1 amp to 450 amps is 3/0 to 500 kcmil.
4. Refer to certified dimensional drawings for exact locations of the main power and control power entrance locations.

Fig. 18 — Field Power Wiring

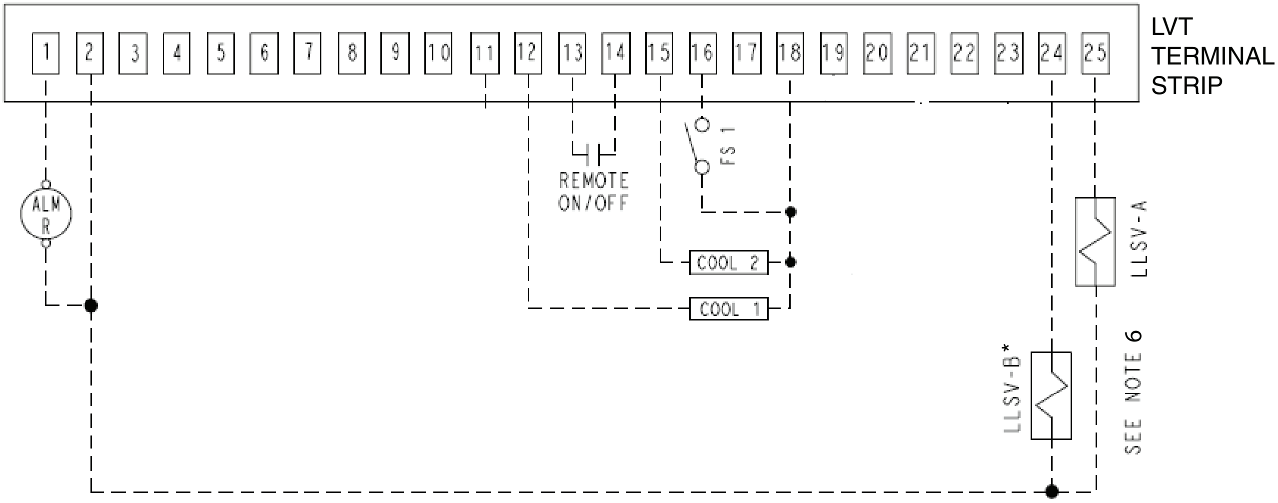


LEGEND

EAT — Evaporator Air Temperature Sensor
FS1 — Fan Status Switch (24-v)
SAT — Supply Air Temperature Sensor

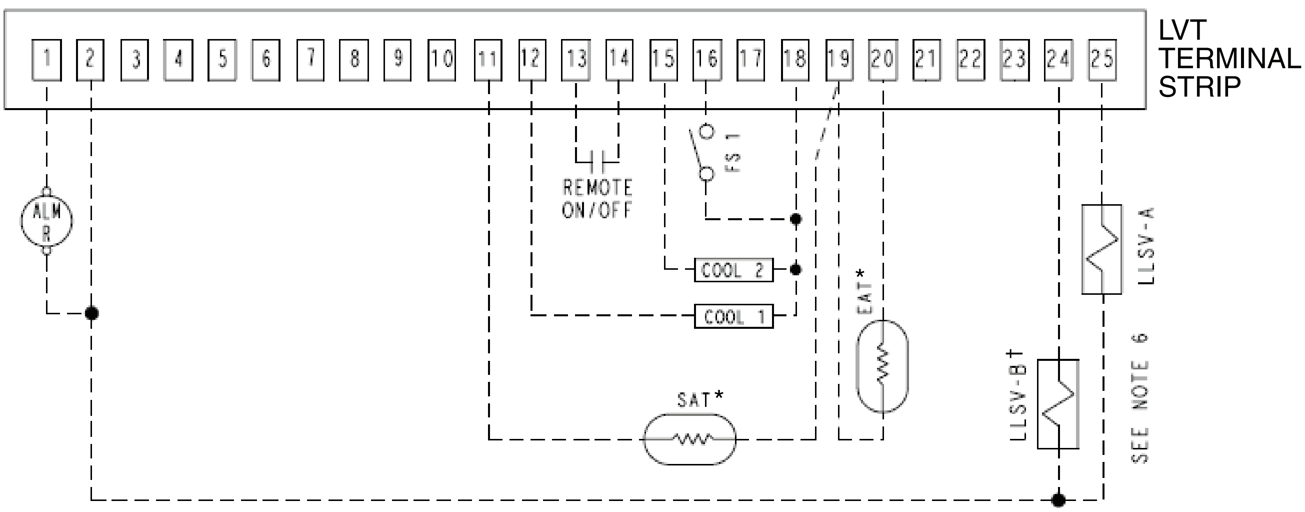
*FS1 can be pressure differential switch (shown), motor current detection, or sail switch.

Fig. 19 — EAT and SAT Sensor Layout



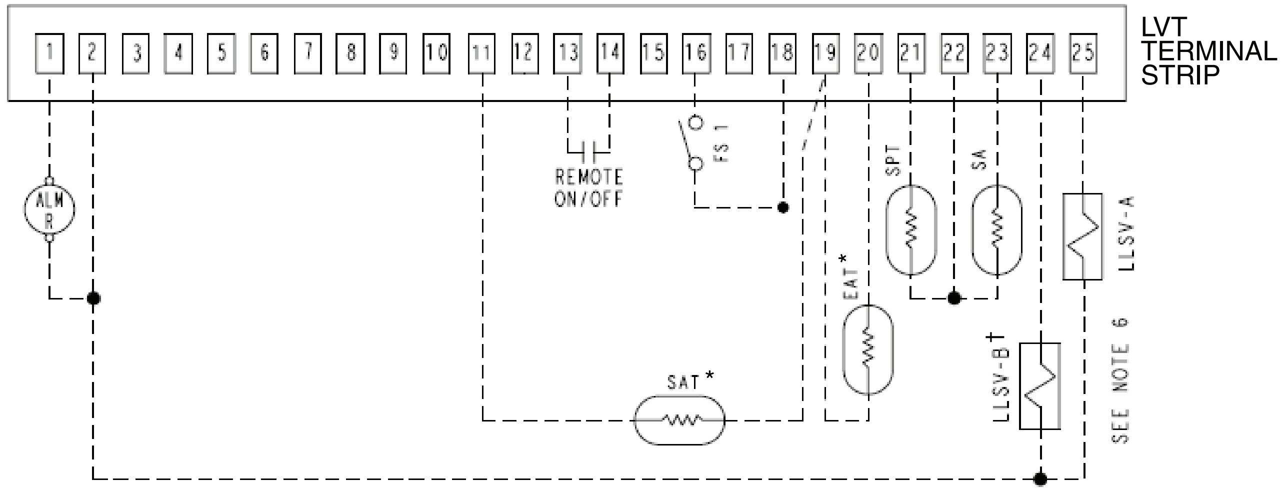
*Not required for single circuit units.

Fig. 20 — Constant Volume Application Wiring Diagram 2-Stage Thermostat Control, Sizes 025-030 — without Digital Scroll Option



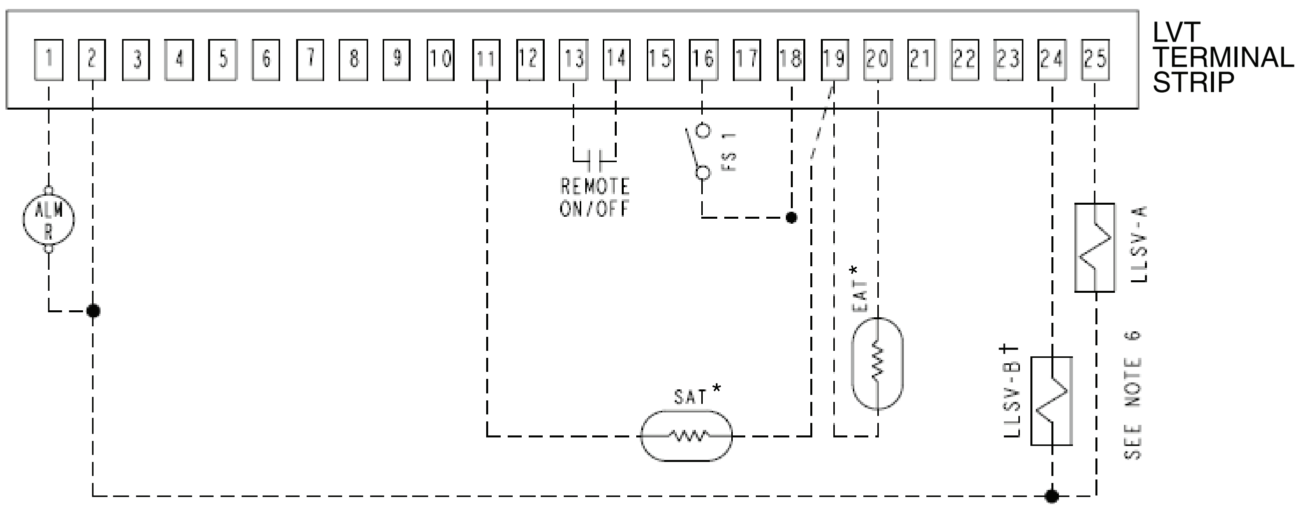
*See Fig. 19 for EAT and SAT location.
†Not required for single circuit units.

Fig. 21 — Constant Volume Application Wiring Diagram 2-Stage Thermostat Control — with Digital Scroll Option, Sizes 025-30 or without Digital Scroll Option, Sizes 040-100



*See Fig. 19 for EAT and SAT location.
†Not required for single circuit units.

Fig. 22 — Constant Volume Application Wiring Diagram Space Temperature Sensor Control, Sizes 025-100



*See Fig. 19 for EAT and SAT location.
†Not required for single circuit units.

Fig. 23 — Variable Air Volume Application Wiring Diagram, Sizes 025-100

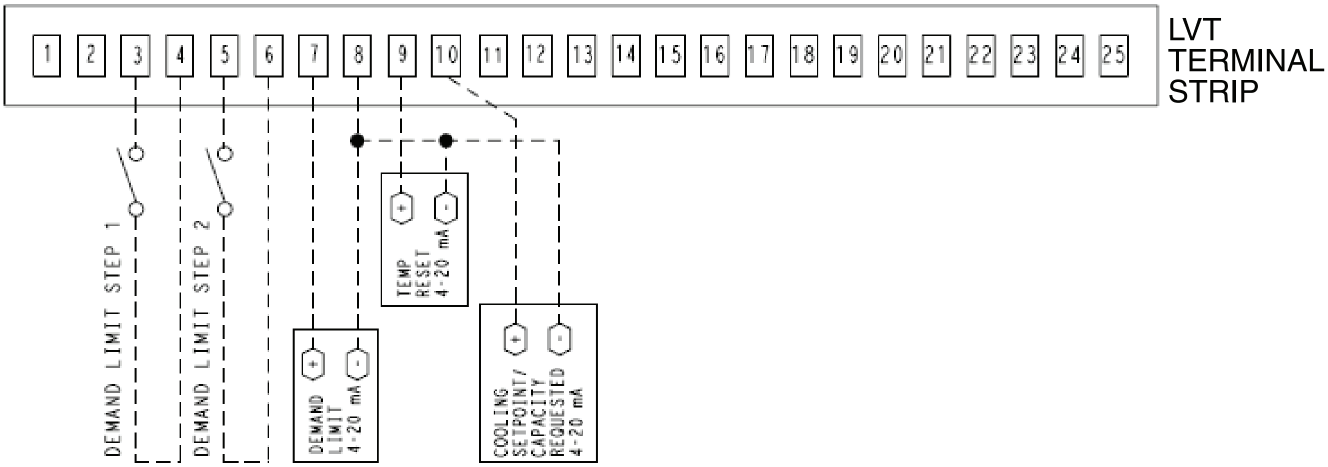


Fig. 24 — Optional Energy Management Module Wiring

Legend and Notes for Fig. 20-24

LEGEND

ALM R	— Alarm Relay (24-v), 5-va Maximum
COM	— Communication
COOL1	— Thermostat Stage 1 (24-v)
COOL2	— Thermostat Stage 2 (24-v)
EAT	— Evaporator Air Temperature Sensor
EMM	— Energy Management Module
EQUIP GND	— Equipment Ground
FS1	— Fan Status Switch (24-v)
LLSV	— Liquid Line Solenoid Valve
LVT	— Low Voltage Terminal
NEC	— National Electrical Code
SA	— Set Point Adjustment (T-56, T-59)
SAT	— Supply Air Temperature Sensor
SPT	— Space Temperature Sensor (T-55, T-56, T-59)
– – – –	Field Power Supply
▬ ▬ ▬ ▬	Field Control Wiring

NOTES:

1. Factory wiring is in accordance with UL 1995 standards. Field modifications or additions must be in compliance with all applicable codes.
2. All units or modules have single point primary power connection. Main power must be supplied from a field or factory-supplied disconnect.
3. Wiring for main field supply must be rated 75 C. Use copper conductors only.
   a. Incoming wire size range for terminal block with MCA (minimum circuit amps) up to 175 amps is 14 AWG (American Wire Gage) to 2/0.
   b. Incoming wire size range for terminal block with MCA from 175.1 amps to 420 amps is 2 AWG to 600 kcmil.
   c. Incoming wire size range for non-fused disconnect with MCA up to 100 amps is 14 AWG to 1/0.
   d. Incoming wire size range for non-fused disconnect with MCA from 100.1 amp to 200 amps is 6 AWG to 350 kcmil.
   e. Incoming wire size range for non-fused disconnect with MCA from 200.1 amp to 450 amps is 3/0 to 500 kcmil.
4. Terminals 1 and 2 of the LVT are for the alarm relay. The maximum load allowed for the alarm relay is 5-va sealed and 10-va inrush at 24-v. Field power supply is not required.
5. Refer to certified dimensional drawings for exact locations of the main power and control power entrance locations.
6. Terminals 24, 25, and 2 of the LVT are for the control of the field-supplied LLSV. The maximum load allowed for the LLSV is 15-va sealed and 30-va inrush at 24-v. Field power supply is not required.
7. LLSV (24-v) should be 15-va maximum per valve as required.
8. Not used on single circuit unit.
9. Installation of fan status switch (FS1) is recommended.
10. The contacts for remote ON/OFF, fan status, and demand limit options must be rated for dry circuit application capable of handling a 24-vac load up to 50 mA.

Table 9 — 38APS Standard Condenser Fan Electrical Data

38APS UNIT SIZE	V-Ph-Hz	SUPPLY VOLTAGE		COMPRESSOR			CONDENSER FAN		MCA	MOCP	REC FUSE	ICF
		Min	Max	Qty	RLA	LRA	Total Qty	FLA				
025	208/230-3-60	187	254	2	48.1	245	2	6.6	121.4	150	150	306.3
	380-3-60	342	418		23.7	145		3.9	61.1	80	70	176.5
	460-3-60	414	506		18.6	125		3.3	48.5	60	60	150.2
	575-3-60	518	632		14.7	100		2.6	38.3	50	45	119.9
	380/415-3-50	342	440		18.6	118		3.3	48.5	60	60	143.2
027	208/230-3-60	187	254	2	51.3	300	2	6.6	128.6	175	150	364.5
	380-3-60	342	418		26.9	139		3.9	68.3	90	80	173.7
	460-3-60	414	506		23.1	150		3.3	58.6	80	70	179.7
	575-3-60	518	632		19.9	109		2.6	50.0	60	60	134.1
	380/415-3-50	342	440		23.1	140		3.3	58.6	80	70	169.7
030	208/230-3-60	187	254	2	55.8	340	2	6.6	138.8	175	175	409.0
	380-3-60	342	418		34.0	196		3.9	84.3	110	100	237.8
	460-3-60	414	506		26.9	179		3.3	67.1	90	80	212.5
	575-3-60	518	632		23.7	132		2.6	58.5	80	70	160.9
	380/415-3-50	342	440		26.9	174		3.3	67.1	90	80	207.5
040	208/230-3-60	187	254	3	51.3	300	3	6.6	186.5	225	200	422.4
	380-3-60	342	418		26.9	139		3.9	99.1	125	110	204.5
	460-3-60	414	506		23.1	150		3.3	85.0	100	100	206.1
	575-3-60	518	632		19.9	109		2.6	72.5	90	80	156.6
	380/415-3-50	342	440		23.1	140		3.3	85.0	100	100	196.1
050	208/230-3-60	187	254	3	55.8	340	3	6.6	201.2	250	225	471.4
	380-3-60	342	418		34.0	196		3.9	122.2	150	150	275.7
	460-3-60	414	506		26.9	179		3.3	97.3	110	110	242.7
	575-3-60	518	632		23.7	132		2.6	84.8	100	100	187.2
	380/415-3-50	342	440		26.9	174		3.3	97.3	110	110	237.7

Table 10 — 38APS Low Sound Condenser Fan Electrical Data

38APS UNIT SIZE	V-Ph-Hz	SUPPLY VOLTAGE		COMPRESSOR			CONDENSER FAN		MCA	MOCP	REC FUSE	ICF
		Min	Max	Qty	RLA	LRA	Total Qty	FLA				
025	208/230-3-60	187	254	2	48.1	245	2	6.0	120.2	150	150	305.1
	380-3-60	342	418		23.7	145		3.9	61.1	80	70	176.5
	460-3-60	414	506		18.6	125		2.9	47.7	60	60	149.4
	575-3-60	518	632		14.7	100		2.4	37.9	50	45	119.5
	380/415-3-50	342	440		18.6	118		2.9	47.7	60	60	142.4
027	208/230-3-60	187	254	2	51.3	300	2	6.0	127.4	175	150	363.3
	380-3-60	342	418		26.9	139		3.9	68.3	90	80	173.7
	460-3-60	414	506		23.1	150		2.9	57.8	80	70	178.9
	575-3-60	518	632		19.9	109		2.4	49.6	60	60	133.7
	380/415-3-50	342	440		23.1	140		2.9	57.8	80	70	168.9
030	208/230-3-60	187	254	2	55.8	340	2	6.0	137.6	175	175	407.8
	380-3-60	342	418		34.0	196		3.9	84.3	110	100	237.8
	460-3-60	414	506		26.9	179		2.9	66.3	90	80	211.7
	575-3-60	518	632		23.7	132		2.4	58.1	80	70	160.5
	380/415-3-50	342	440		26.9	174		2.9	66.3	90	80	206.7
040	208/230-3-60	187	254	3	51.3	300	3	6.0	184.7	225	200	420.6
	380-3-60	342	418		26.9	139		3.9	99.1	125	110	204.5
	460-3-60	414	506		23.1	150		2.9	83.8	100	100	204.9
	575-3-60	518	632		19.9	109		2.4	71.9	90	80	156.0
	380/415-3-50	342	440		23.1	140		2.9	83.8	100	100	194.9
050	208/230-3-60	187	254	3	55.8	340	3	6.0	199.4	250	225	469.6
	380-3-60	342	418		34.0	196		3.9	122.2	150	150	275.7
	460-3-60	414	506		26.9	179		2.9	96.1	110	110	241.5
	575-3-60	518	632		23.7	132		2.4	84.2	100	100	186.6
	380/415-3-50	342	440		26.9	174		2.9	96.1	110	110	236.5

LEGEND

FLA — Full Load Amps
ICF — Maximum Instantaneous Current Flow
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

NOTES:
1. Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage 2%; amps 10%.
2. All units or modules have single point primary power connection. Main power must be supplied from a field-supplied disconnect.
3. For MCA that is less than or equal to 380 amps, 3 conductors are required.
   For MCA between 381 and 760 amps, 6 conductors are required.
   Calculation of conductors required is based on 75 C copper wire.
4. Wiring for main field supply must be rated 75 C. Use copper conductors only.
   a. Incoming wire size range for terminal block with MCA up to 175 amps is 14 AWG (American Wire Gage) to 2/0.
   b. Incoming wire size range for terminal block with MCA from 175.1 amps to 420 amps is 2 AWG to 600 kcmil.
   c. Incoming wire size range for non-fused disconnect with MCA up to 100 amps is 14 AWG to 1/0.
   d. Incoming wire size range for non-fused disconnect with MCA from 100.1 amp to 200 amps is 6 AWG to 350 kcmil.
   e. Incoming wire size range for non-fused disconnect with MCA from 200.1 amp to 450 amps is 3/0 to 500 kcmil.

Table 11 — 38APD Standard Condenser Fan Electrical Data

38APD UNIT SIZE	V-Ph-Hz	SUPPLY VOLTAGE		COMPRESSOR						CONDENSER FAN		MCA	MOCP	REC FUSE	ICF
				CIRCUIT A			CIRCUIT B			Total Qty	FLA				
		Min	Max	Qty	RLA	LRA	Qty	RLA	LRA						
	208/230-3-60	187	254		48.1	245		48.1	245		6.6	121.4	150	150	306.3
	380-3-60	342	418		23.7	145		23.7	145		3.9	61.1	80	70	176.5
025	460-3-60	414	506	1	18.6	125	1	18.6	125	2	3.3	48.5	60	60	150.2
	575-3-60	518	632		14.7	100		14.7	100		2.6	38.3	50	45	119.9
	380/415-3-50	342	440		18.6	118		18.6	118		3.3	48.5	60	60	143.2
	208/230-3-60	187	254		51.3	300		51.3	300		6.6	128.6	175	150	364.5
	380-3-60	342	418		26.9	139		26.9	139		3.9	68.3	90	80	173.7
027	460-3-60	414	506	1	23.1	150	1	23.1	150	2	3.3	58.6	80	70	179.7
	575-3-60	518	632		19.9	109		19.9	109		2.6	50.0	60	60	134.1
	380/415-3-50	342	440		23.1	140		23.1	140		3.3	58.6	80	70	169.7
	208/230-3-60	187	254		55.8	340		55.8	340		6.6	138.8	175	175	409.0
	380-3-60	342	418		34.0	196		34.0	196		3.9	84.3	110	100	237.8
030	460-3-60	414	506	1	26.9	179	1	26.9	179	2	3.3	67.1	90	80	212.5
	575-3-60	518	632		23.7	132		23.7	132		2.6	58.5	80	70	160.9
	380/415-3-50	342	440		26.9	174		26.9	174		3.3	67.1	90	80	207.5
	208/230-3-60	187	254		35.8	239		33.4	225		6.6	167.2	200	175	361.4
	380-3-60	342	418		23.7	145		19.2	140		3.9	103.5	125	110	218.9
040	460-3-60	414	506	2	17.9	125	2	16.7	114	3	3.3	83.6	100	90	186.2
	575-3-60	518	632		14.3	80		13.4	80		2.6	66.7	80	70	128.8
	380/415-3-50	342	440		17.9	118		16.7	111		3.3	83.6	100	90	179.2
	208/230-3-60	187	254		51.3	300		51.3	300		6.6	231.4	250	250	467.3
	380-3-60	342	418		26.9	139		26.9	139		3.9	119.6	125	125	225.0
050	460-3-60	414	506	2	23.1	150	2	23.1	150	3	3.3	99.1	110	110	220.2
	575-3-60	518	632		19.9	109		19.9	109		2.6	82.0	100	90	166.1
	380/415-3-50	342	440		23.1	140		23.1	140		3.3	99.1	110	110	210.2
	208/230-3-60	187	254		51.3	300		55.8	340		6.6	254.6	300	300	524.8
	380-3-60	342	418		26.9	139		34.0	196		3.9	145.9	175	175	299.4
060	460-3-60	414	506	2	23.1	150	2	26.9	179	4	3.3	119.9	125	125	265.3
	575-3-60	518	632		19.9	109		23.7	132		2.6	103.5	125	110	205.9
	380/415-3-50	342	440		23.1	140		26.9	174		3.3	119.9	125	125	260.3
	208/230-3-60	187	254		55.8	340		46.1	245		6.6	296.3	300	300	566.5
	380-3-60	342	418		34.0	196		23.7	145		3.9	163.2	175	175	316.7
070	460-3-60	414	506	2	26.9	179	3	18.6	125	4	3.3	129.5	150	150	274.9
	575-3-60	518	632		23.7	132		14.7	100		2.6	107.8	125	125	210.2
	380/415-3-50	342	440		26.9	174		18.6	118		3.3	129.5	150	150	269.9
	208/230-3-60	187	254		55.8	340		55.8	340		6.6	326.0	350	350	596.2
	380-3-60	342	418		34.0	196		34.0	196		3.9	198.0	225	225	351.5
080	460-3-60	414	506	2	26.9	179	3	26.9	179	5	3.3	157.7	175	175	303.1
	575-3-60	518	632		23.7	132		23.7	132		2.6	137.4	150	150	239.8
	380/415-3-50	342	440		26.9	174		26.9	174		3.3	157.7	175	175	298.1
	208/230-3-60	187	254		51.3	300		55.8	340		6.6	374.9	400	400	645.1
	380-3-60	342	418		26.9	139		34.0	196		3.9	214.6	225	225	368.1
090	460-3-60	414	506	3	23.1	150	3	26.9	179	6	3.3	176.5	200	200	321.9
	575-3-60	518	632		19.9	109		23.7	132		2.6	152.3	175	150	254.7
	380/415-3-50	342	440		23.1	140		26.9	174		3.3	176.5	200	200	311.9
	208/230-3-60	187	254		55.8	340		55.8	340		6.6	388.4	400	400	658.6
	380-3-60	342	418		34.0	196		34.0	196		3.9	235.9	250	250	389.4
100	460-3-60	414	506	3	26.9	179	3	26.9	179	6	3.3	187.9	200	200	333.3
	575-3-60	518	632		23.7	132		23.7	132		2.6	163.7	175	175	266.1
	380/415-3-50	342	440		26.9	174		26.9	174		3.3	187.9	200	200	328.3

LEGEND

FLA — Full Load Amps
ICF — Maximum Instantaneous Current Flow
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

NOTES:

1. Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage 2%; amps 10%.
2. All units or modules have single point primary power connection. Main power must be supplied from a field-supplied disconnect.
3. For MCA that is less than or equal to 380 amps, 3 conductors are required.
   For MCA between 381 and 760 amps, 6 conductors are required.
   Calculation of conductors required is based on 75 C copper wire.
4. Wiring for main field supply must be rated 75 C. Use copper conductors only.
   a. Incoming wire size range for terminal block with MCA up to 175 amps is 14 AWG (American Wire Gage) to 2/0.
   b. Incoming wire size range for terminal block with MCA from 175.1 amps to 420 amps is 2 AWG to 600 kcmil.
   c. Incoming wire size range for non-fused disconnect with MCA up to 100 amps is 14 AWG to 1/0.
   d. Incoming wire size range for non-fused disconnect with MCA from 100.1 amp to 200 amps is 6 AWG to 350 kcmil.
   e. Incoming wire size range for non-fused disconnect with MCA from 200.1 amp to 450 amps is 3/0 to 500 kcmil.

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Table 12 — 38APD Low Sound Condenser Fan Electrical Data

38APD UNIT SIZE	V-Ph-Hz	SUPPLY VOLTAGE		COMPRESSOR						CONDENSER FAN		MCA	MOCP	REC FUSE	ICF
				CIRCUIT A			CIRCUIT B			Total Qty	FLA				
		Min	Max	Qty	RLA	LRA	Qty	RLA	LRA						
	208/230-3-60	187	254		48.1	245		48.1	245		6.0	120.2	150	150	305.1
	380-3-60	342	418		23.7	145		23.7	145		3.9	61.1	80	70	176.5
025	460-3-60	414	506	1	18.6	125	1	18.6	125	2	2.9	47.7	60	60	149.4
	575-3-60	518	632		14.7	100		14.7	100		2.4	37.9	50	45	119.5
	380/415-3-50	342	440		18.6	118		18.6	118		2.9	47.7	60	60	142.4
	208/230-3-60	187	254		51.3	300		51.3	300		6.0	127.4	175	150	363.3
	380-3-60	342	418		26.9	139		26.9	139		3.9	68.3	90	80	173.7
027	460-3-60	414	506	1	23.1	150	1	23.1	150	2	2.9	57.8	80	70	178.9
	575-3-60	518	632		19.9	109		19.9	109		2.4	49.6	60	60	133.7
	380/415-3-50	342	440		23.1	140		23.1	140		2.9	57.8	80	70	168.9
	208/230-3-60	187	254		55.8	340		55.8	340		6.0	137.6	175	175	407.8
	380-3-60	342	418		34.0	196		34.0	196		3.9	84.3	110	100	237.8
030	460-3-60	414	506	1	26.9	179	1	26.9	179	2	2.9	66.3	90	80	211.7
	575-3-60	518	632		23.7	132		23.7	132		2.4	58.1	80	70	160.5
	380/415-3-50	342	440		26.9	174		26.9	174		2.9	66.3	90	80	206.7
	208/230-3-60	187	254		35.8	239		33.4	225		6.0	165.4	200	175	359.6
	380-3-60	342	418		23.7	145		19.2	140		3.9	103.5	125	110	218.9
040	460-3-60	414	506	2	17.9	125	2	16.7	114	3	2.9	82.4	100	90	185.0
	575-3-60	518	632		14.3	80		13.4	80		2.4	66.1	80	70	128.2
	380/415-3-50	342	440		17.9	118		16.7	111		2.9	82.4	100	90	178.0
	208/230-3-60	187	254		48.1	245		51.3	300		6.0	229.6	250	250	465.5
	380-3-60	342	418		23.7	145		26.9	139		3.9	119.6	125	125	225.0
050	460-3-60	414	506	2	18.6	125	2	23.1	150	3	2.9	97.9	110	110	219.0
	575-3-60	518	632		14.7	100		19.9	109		2.4	81.4	100	90	165.5
	380/415-3-50	342	440		18.6	118		23.1	140		2.9	97.9	110	110	212.0
	208/230-3-60	187	254		51.3	300		55.8	340		6.0	252.2	300	300	522.4
	380-3-60	342	418		26.9	139		34.0	196		3.9	145.9	175	175	299.4
060	460-3-60	414	506	2	23.1	150	2	26.9	179	4	2.9	118.3	125	125	263.7
	575-3-60	518	632		19.9	109		23.7	132		2.4	102.7	125	110	205.1
	380/415-3-50	342	440		23.1	140		26.9	174		2.9	118.3	125	125	253.7
	208/230-3-60	187	254		55.8	340		46.1	245		6.0	293.9	300	300	564.1
	380-3-60	342	418		34.0	196		23.7	145		3.9	163.2	175	175	316.7
070	460-3-60	414	506	2	26.9	179	3	18.6	125	4	2.9	127.9	150	150	273.3
	575-3-60	518	632		23.7	132		14.7	100		2.4	107.0	125	125	209.4
	380/415-3-50	342	440		26.9	174		18.6	118		2.9	127.9	150	150	268.3
	208/230-3-60	187	254		55.8	340		55.8	340		6.0	323.0	350	350	587.2
	380-3-60	342	418		34.0	196		34.0	196		3.9	198.0	225	225	347.6
080	460-3-60	414	506	2	26.9	179	3	26.9	179	5	2.9	155.7	175	175	298.2
	575-3-60	518	632		23.7	132		23.7	132		2.4	136.4	150	150	236.4
	380/415-3-50	342	440		26.9	174		26.9	174		2.9	155.7	175	175	293.2
	208/230-3-60	187	254		51.3	300		55.8	340		6.0	371.3	400	400	641.5
	380-3-60	342	418		26.9	139		34.0	196		3.9	214.6	225	225	368.1
090	460-3-60	414	506	3	23.1	150	3	26.9	179	6	2.9	174.1	200	200	319.5
	575-3-60	518	632		19.9	109		23.7	132		2.4	151.1	175	150	253.5
	380/415-3-50	342	440		23.1	140		26.9	174		2.9	174.1	200	200	309.5
	208/230-3-60	187	254		55.8	340		55.8	340		6.0	384.8	400	400	655.0
	380-3-60	342	418		34.0	196		34.0	196		3.9	235.9	250	250	389.4
100	460-3-60	414	506	3	26.9	179	3	26.9	179	6	2.9	185.5	200	200	330.9
	575-3-60	518	632		23.7	132		23.7	132		2.4	162.5	175	175	264.9
	380/415-3-50	342	440		26.9	174		26.9	174		2.9	185.5	200	200	325.9

LEGEND

FLA — Full Load Amps
ICF — Maximum Instantaneous Current Flow
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

NOTES:

1. Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage 2%; amps 10%.
2. All units or modules have single point primary power connection. Main power must be supplied from a field-supplied disconnect.
3. For MCA that is less than or equal to 380 amps, 3 conductors are required.
   For MCA between 381 and 760 amps, 6 conductors are required.
   Calculation of conductors required is based on 75 C copper wire.
4. Wiring for main field supply must be rated 75 C. Use copper conductors only.
   a. Incoming wire size range for terminal block with MCA up to 175 amps is 14 AWG (American Wire Gage) to 2/0.
   b. Incoming wire size range for terminal block with MCA from 175.1 amps to 420 amps is 2 AWG to 600 kcmil.
   c. Incoming wire size range for non-fused disconnect with MCA up to 100 amps is 14 AWG to 1/0.
   d. Incoming wire size range for non-fused disconnect with MCA from 100.1 amp to 200 amps is 6 AWG to 350 kcmil.
   e. Incoming wire size range for non-fused disconnect with MCA from 200.1 amp to 450 amps is 3/0 to 500 kcmil.

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Table 13 — Unit Incoming Power Options

MOCP VALUE	UNIT INCOMING POWER OPTION						
	Standard Terminal Block Option		High SCCR Terminal Block Option			Standard and High SCCR Disconnect Option	
	Max Wire Size	Min Wire Size	Max Wire Size	Min Wire Size	High SCCR Fuse Type	Max Wire Size	Min Wire Size
100 A or less	2/0	#14 AWG	2/0	#6 AWG	J, RK1, or RK5	1/0	#14 AWG
Greater than 100 A and Less than or Equal to 200 A	2/0	#14 AWG	2/0	#6 AWG	J or RK1	350 kcmil	#6 AWG
Greater than 200	600 kcmil	#2	600 kcmil	3/0	J or RK1	500 kcmil (1) 500 kcmil (2)	3/0

LEGEND

AWG — American Wire Gage
kcmil — Thousand Circular Mills
MOCP — Maximum Overcurrent Protection
SCCR — Short Circuit Current Rating

NOTES:
1. Terminal block high SCCR option units must use approved fuses to meet high SCCR rating.
2. High SCCR disconnect option units can use either approved fuse or circuit breaker for incoming power protection.
3. Time delay fuse type required.

Step 5 — Install Accessories

LOW-AMBIENT OPERATION — If operating temperatures below those found in Table 14 are expected, Motormaster® V fan motor control is recommended.

Table 14 — 38AP Unit Low Ambient Limitations

Single Circuit

38APS UNIT SIZE	MINIMUM LOW AMBIENT (Standard Unit)	MINIMUM LOW AMBIENT MOTORMASTER® CONTROL (Factory-Installed Option)
025-050	45 F (7.2 C)	–20 F (–28.9 C)

Dual Circuit

38APD UNIT SIZE	MINIMUM LOW AMBIENT (Standard Unit)	MINIMUM LOW AMBIENT MOTORMASTER CONTROL (Factory-Installed Option)
025-040	32 F (0 C)	–20 F (–28.9 C)
050-060	25 F (–3.9 C)	–20 F (–28.9 C)
070-100	32 F (0 C)	–20 F(–28.9 C)

MISCELLANEOUS ACCESSORIES — Energy management module, Navigator™ display, remote enhanced display, Touch Pilot™ display, BACnet™ translator control, LON (local operating network) translator control, and long line accessory kit are available for special applications.